PROGRAMME AND ABSTRACT BOOK

Wahid Hasyim International Conference on Advance Pharmaceutical Sciences (WHICAPS) 2022

Multiple Approaches of Advance Cancer Therapy and Handling Cytostatic Drugs Workshop

Organized by:

unwahas
UNIVERSITAS WAHID HASYIM

Supported by:

IKATAN APOTEKER INDONESIA IAI

PERSATUAN AHLI FARMASI INDONESIA PAFI

Juné 5-6th , 2022
Patra Semarang Convention Hotel
Indonesia

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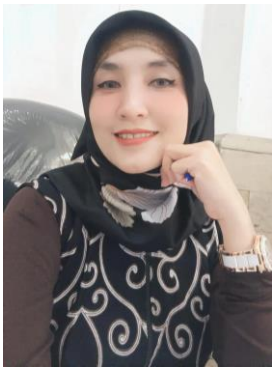
Welcome Messages



Chairman of Organizing Committee of Wahid Hasyim International Conference on Advanced Pharmaceutical Sciences (WHICAPS) 2022

apt. Risha Fillah Fithria, M.Sc

Assalamu'alaikum Wr. Wb.

Good morning, ladies and gentlemen. Peace be upon us all.

First of all let us say praise to Allah SWT who gives thousands of favors to us until this day, we can implement event with festivities, full of a strong sense of community. Sholawat as well as greetings to our Prophet Muhammad saw, many gave us a minimal model well and we should emulate.

The honorable Mayor of Semarang, H. Hendrar Prihadi, S.E, MM
The honorable Chief of Indonesian Pharmacist Association Center, apt. Drs. Nurul Falah Eddy Pariang
The honorable rector of Wahid Hasyim University, Prof. Dr. KH. Mudzakir Ali, MA
The honorable dean of Faculty of Pharmacy, Dr. Apoteker, Maulita Cut Nuria, M.Si.
The honorable keynote speakers, invited speakers, parallel presenters, the amazing organizing committee members, and all distinguished guests, participants of Wahid Hasyim International Conference on Advance Pharmaceutical Science 2022 (WHICAPS 2022) who attend online and offline today. It is such a great pleasure to welcome you all to this Conference. I would also like to welcome you all to Semarang, the capital and largest city of Central Java province in Indonesia. On behalf of the organizing committee of the conference, allow me to deliver several points of report as follows.

The WHICAPS 2022 is to bring together innovative researchers, academics (pharmacists and other related professions) and industrial experts in the field of Pharmacy and Pharmaceutical Science to a common forum. This year, we, the committee, try to bring up a theme of "Multiple Approaches of Advance Cancer Therapy and handling cytostatic drugs Workshop". We believe that the aforementioned aspects play an important role in creating an integrated modern medicine and more effective in the future, especially in overcoming cancer.

This conference should be held in 2020, but due to the covid pandemic we had to postpone until today, alhamdulillah finally we are able to hold a conference today even though some invited speakers and participants couldn't attend offline today. Insya Allah, WHICAPS will always be held annually.

To expand the knowledge of all the participants particularly Indonesians, we invite several international speakers from Florida, Germany, Croatia, Malaysia, and also Indonesia whom I believe will bring new insights to the development of cancer therapy.

Ladies and gentlemen, representing the organizing committee of the conference, I would like to express my deepest gratitude to everybody taking a part in this conference: participants, keynote speakers, invited speakers, parallel presenters, organizing committee, steering committee, the university, sponsors, and also everyone else. Even though we, the committee, have tried our best efforts to make a better conference this year, I believe that there remains some inconvenience. For that, we do apologize. That would be the end of my report. One more time, deep from the place of caring inside, thank you very much.. and please enjoy the conference. Wassalamu'alaikum Wr. Wb

Dean of Faculty of Pharmacy, Universitas Wahid Hasyim

Dr. apt. Maulita Cut Nuria, M.Sc.

Assalamu'alaikum wr. wb.

The honourable, Rector University of Wahid Hasyim

With recpect, chairman and secretary of the Wahid Hasyim Foundation

With respect, Vice-Chancellors and Deans at the University of Wahid Hasyim

With respect, keynote speakers, invited speakers, lecturers, and all invited guests

First of all, let us praise to the Almighty Allah SWT, because of his blessing and mercy so we can gather in this wonderful place without something wrong happen. Secondly, may peace be upon the prophet Muhammad SAW who has guided us from the darkness into the brightness. Aamiin.

Faculty of Pharmacy organized Wahid Hasyim International Conference on Advance Pharmaceutical Sciences (WHICAPS) 2022 by theme "Multiple Approaches of Advance Cancer Therapy" and also with handling cytostatic drugs workshop. Initially this conference was planned in October 2020, but due to the pandemic Covid-19 that happening all over the world, the conference being postponed for almost two years. Along with the decline in the number of cases of Covid-19 in Indonesia specially at Semarang city, we decided to manage this activity in a hybrid way. Some participants and speakers are on site in the venue and the others attend online.

WHICAPS is a conference managed by faculty of pharmacy that is planned to be held regularly every year. We strive the themes that are carried out, were such an important issue in the field of pharmaceutical sciences. Hopefully we could arranged it as we planned, so we can contribute to the improvement of pharmaceutical sciences. It is such an honor for me to meet in person with all the participants, speakers, lecturers and everyone who has contributed to the successfully of this event. I would also express my sincere appreciation to the organizing committee who have work hard for the success of this event.

Once again, welcome to the Wahid Hasyim International Conference and for the participants came from outside of Semarang city, I hope you enjoyed stay in here and thank you very much for attending this event. On behalf of all the committee in charge, we apologize if there are shortcomings in the organization of this event. Hopefully we can meet again on another occasion.

Wallahul Muwaffiq Illa Aqwamith Thariq

Wassalamu'alaikum Wr. Wb.

Rector of Universitas Wahid Hasyim

Prof. Dr. Mudzakkir Ali, MA.

Assalamu'alakium, Wr. Wb.

Good morning, everybody, ladies and gentlemen! Honorable the chairman of Wahid Hasyim Foundation Honorable, the mayor of Semarang city, Dr. Hendrar Prihadi

Honorable all distinguished speakers, guests, students, ladies and gentlemen!

First of all, I would like to express my deepest gratitude to Allah who has granted countless mercy and blessing so that we can gather in this beautiful moment. Secondly, Shalawat and salam may always be upon our adoration and shining model, Prophet Muhammad Saw, upon all of his companions, friends, and families.

I would like to thank you for attending this seminar, especially to Dr. Hendi (Mas Hendi), the Mayor of Semarang City and all speakers coming from Soetomo Hospital, Kalbe Farma, PP IAI, and more importantly, speakers from overseas: India, Malaysia, Kroasia and Florida. It is an honor for me to be with you in this precious moment. I would like to say Welcome to Universitas Wahid Hasyim Semarang.

Ladies and Gentlemen!

A "Cancer" is one of the most dangerous disease that is more common than you thought. According to the latest data from World Health Organization (WHO) on February 2022, Cancer is a leading cause of death worldwide. It has increased to 19.3 million new cases, accounting for nearly 10 million deaths in 2020, or nearly one in six deaths. It means that 1 out of 6 people worldwide is at risk of developing cancer during their lifetime. The most common cancers are Colorectal cancer, Bile duct and Liver cancer, Lung cancer, Breast cancer, and Prostate cancer.

In Indonesia, cancer is ranked as the sixth most fatal disease. The most common cancer case in Indonesia are cervical and breast cancer where about 170-190 new cases are predicted to be found every 100,000 people.

Nevertheless, despite its dangerous, the happiest thing is cancer is a preventable and curable disease. I really appreciate to the Dean of Pharmacy faculty and the committee who have initiated this international conference to find out to the various treatment options for cancer. I hope this conference can be highly effective ways for medical practitioners and pharmacists throughout the world to share their experiences in dealing with the cancer.

Finally, by reading "Bismillahirrahmanirrahim" I officially open the Wahid Hasyim International Conference on Advance Pharmaceutical Science (WHICAPS) 2022. May Allah always bless us all with success, health, happiness, patience and strength. Amin.

Thank you for your attention.

Wassalamu'alaikum. Wr. Wb

Access Guide

*Scan this barcode and the map will guide you to find the conference location

WHICAPS 2022 Committee

Advisory Board

The Chairperson of Wahid Hasyim Foundation
Rector & Vice Rector of Universitas Wahid Hasyim
Dean of Faculty of Pharmacy

Chairman
apt. Risha Fillah Fithria, M.Sc.

Secretary
apt. Junvidya Heroweti, M.P.H.
apt. Malinda Prihantini, M.Si.

Treasurer
Sulistyaningtyas, S.E.I.
Dwi Meilani, A.Md.

Secretariat
apt. Devi Nisa Hidayati, M.Sc.
apt. Maria Ulfah, S. Farm., M. Sc.
Imam Asrofi, S.Farm.
Andi Heru Wahyanto
Maskuri

Programme and Conference
apt. Kiki Damayanti, M.Farm.
apt. Gharsina Ghaisani Yumni, M.Pharm.Sci.
M Fatchur Rochman, M.Farm.

Scientific
Dr. apt. Yulias Ninik Windriyati, M. Si.
Dr. apt. Maulita Cut Nuria, M. Sc.
apt. Sri Susilowati, M.Si.
apt. Dewi Andini Kunti Mulangsri, M.Farm.
apt. Ayu Shabrina, M.Farm.

Logistic
Sugito Chandra, S.Farm.
Wahid Muhaimin, S.Farm.
M. Azi Zauzan, SIP.

Transportation
Muhammad Ikhsan, S.Farm., MH.
apt. Khoirul Anwar, M.Farm.

Consumption
Yuni Warniyati., ST.
Pipit Andrianni, S.Farm.
Sri Lestari, S.Farm.

Programme and Schedule

Date	Time	Events
Sunday, 5th June 2022	07.00 – 08.00	Participant registration and poster installing
	08.00 – 10.00	Opening Ceremony Welcome Speech: 1. Chairman of the Organizing Committee 2. Dean of Faculty of Pharmacy 3. Rector of Universitas Wahid Hasyim Keynote Speech: 1. Indonesian Pharmacist Association 2. Mayor of Semarang, Indonesia
	10.10 – 10.15	Coffee break
	10.15 – 11.15	Invited speaker: Indra Bachtiar, Ph.D (Indonesia), **"The Future of Stemcell for Regenerative Medicine and Cancer Treatment"**
	11.15 – 12.30	Workshop of Handling Cytostatic Drugs by apt. Halim Priyahau Jaya, S.Farm., M.Farm.Klin.
	12.30 – 13.30	Lunch, Dhuhur Pray, poster session
	13.30 – 14.30	Workshop of Handling Cytostatic Drugs by apt. Halim Priyahau Jaya, S.Farm., M.Farm.Klin.
	14.30 – 15.30	Invited speaker: Ranjita Shegokar, Ph.D (Germany) **"Nanomedicines in Cancer"**
	15.30 – 16.00	Coffee break
	16.00 – 17.30	Community Service
Monday, 6th June 2022	07.30 – 08.00	Participant registration
	08.00 – 09.00	Invited speaker: Assoc. Prof. Dr. Farahidah Mohamed (Malaysia) **"Good Manufacturing Practice for Clinical Trial of New Anticancer Drugs (Conventional vs New Generation Dosage Form, i.e Stem Cell-Based)**
	09.00 – 09.30	Coffee break
	09.30 – 10.30	Invited speaker: Prof. Yashwant Pathak (Florida, USA) **"Nano Based Value Care Solutions for Oncology Practices with Focus on Herbal and Nutraceuticals"**
	10.30 – 13.00	Parallel oral presentation
	13.00 – 14.00	Lunch, Dhuhur pray, poster session
	14.00 – 15.00	Invited speaker: doc. Dr. sc. Zrinka Puharić, dr. med. Spec (Croatia) **" Nutritional Status of Croation Students: Can We be Satisfied?"**
	15.00	Clossing ceremony

Information for Participant

Language

The official language of the Conference in English, which will be used in presentations and printed materials.

Sessions and Changes

Please make sure to be in session room on time all session will begin as per schedule. The Organizing Committee reserves the right to adjust or change the program if it necessary, however, it will be informed in the front of Conference rooms.

Indonesian Credit Point (Continuing Education)

Participants from Indonesia can acquire credit points (22 credit points) for continuing education, however, they need to verify their identities by signing the attendance list.

Oral Presentation

For oral presentation, there are three (3) room session, two performed offline in site and one performed online via zoom meeting. Each paper will have 15 minutes to present (10 minutes for presentation and 5 minutes for discussion).

Poster

Poster will be installed from June 5th. The printed poster with it standing will be collected in registration, and will be ready for exhibited before the opening session. Poster presentation started at 12-13 pm on June 5th. Poster removal scheduled on June 6th, starting from 4 pm. All poster presenters are responsible for putting up and removing their own poster in proper way. WHICAPS Organizing Committee do not provide any responsibility to the uninstalled poster until the closing time.

Conference Policy

1. Smoking is prohibited at all times in the area of Poncowati Hall
2. Wearing mask is a mandatory during the conference session
3. Mobile phone must be put on the silent mode during sessions

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WHICAPS ORAL PRESENTATION
ROOM 1
MODERATOR: apt. Ririn Lispita Wulandari, M.Si., Med

No	Name	Code	Title	Time
1.	Fahri Mubin	OL1-01	Anti Aging Activity of Apple Stem Cell and Niacinamide Combination Serum in Rats	10.30-10.45
2.	Putri Rista Febrianti	OL1-02	Antiacne Activity of Combination Apple Stem Cell and Niacinamide Serum in Rabbit Induced *Propionibacterium acnes*	10.45-11.00
3.	Anggriya Syahvirga Masidqi Nuladani	OL1-03	Formulation of Lipgloss of Liposome Coenzyme Q10 with Variation Candelilla Wax	11.00-11.15
4.	Ananda Nurunabilah	OL1-04	Comparative In Vitro Dissolution Test of Some Commercially Available Generic and Innovator Glimepiride Tablets in Semarang, Indonesia	11.15-11.30
5.	Faykar Rheza	OL1-05	Application of Lakes System in Formulation W/O Hair Dye Cream of Red Dragon (*Hylocereus polyrhizus*) Fruit Peel Juice with Tween-Span-Propylene Glycol Combination	11.30-11.45
6.	Anisatuz Zahro' Atsabitah	OL1-06	Anti Acne Activity of Mint Leaves (*Mentha piperita)* Ethanol-Methanol Extract in Rabbits Induced by *Propionibacterium acnes*	11.45-12.00
7.	Andita Pita Loka	OL1-07	Evaluation of In Vitro Equivalence of Some Commercially Available Glimepiride Branded Generic and Innovator Tablets in Indonesia	12.00-12.15
8.	Anjani Ramaesa	OL1-08	Formulation and Characterization of Liposome Coenzyme Q10 with Variations in Cholesterol Concentrations	12.15-12.30
9.	Putri Yolanda Oktafia	OL1-09	Lipgloss Liposome Formulation Coenzyme Q10 with Ozokerite Wax Variations as a Base	12.30-12.45
10.	Zidni Rohmah	OL1-10	In Silico Screening of Piperine, Oleoresin and -Caryophyllene Compounds in Javanese Chili (*Piper Retrofractum* Vahl) Against Cyclooxygenase-2 (Cox-2) Enzyme as Anti-Inflammatory	12.45-13.00

*)Question and Answer session will be held along with the presentation

WHICAPS ORAL PRESENTATION

ROOM 2
MODERATOR: apt. Siti Setianingsih, M. Farm.

No	Name	Code	Title	Time
1.	Nikan Nathania	OL2-01	Anti Hyperpigmentation Activity of Serum Combination of Apple Stem Cell and Niacinamide on the Skin of Male Guinea Pig (*Cavia porcellus*)	10.30-10.45
2.	Sobari	OL2-02	Application of Lakes System in Formulation O/W Hair Dye Cream of Red Dragon Fruit (*Hylocereus polyrhizus*) Peel Juice with Tween-Span-Glycerine Combination	10.45-11.00
3.	Galih Hidayanto	OL2-03	Application of Lakes System in Formulation W/O Hair Dye Cream of Butterfly Pea (*Clitoria ternatea* L.) Ethanol Extract with Tween-Span-Propylene Glycol Combination	11.00-11.15
4.	Ihsannur Laily Safara	OL2-04	Antibacterial Activity of Ethanol-Methanol Extract of Mint Leaves (*Mentha piperita* L.) Against Propionibacterium acnes Bacteria	11.15-11.30
5.	Eva Monica	OL2-05	The Use of Cellulose Extract from Alang-Alang (*Imperata cylindrica* l.) as Fillers and Disintegrant of Paracetamol Tablet	11.30-11.45
6.	Farah Fadiyah Anwar	OL2-06	Anti Aging Activity of Ethanol-Methanol Extract of Mint Leaves (*Mentha piperita* L.) on Rats	11.45-12.00
7.	Thiyarotun Ni'mah	OL2-07	Molecular Docking Combinations of Quercetin, Kaempferol and Luteolin Compounds in Onion (*Allium cepa*) Against Main Protease SARS-CoV-2 as Anticovid	12.00-12.15
8.	Syifa Maulida	OL2-08	Application of Lakes System in Formulation O/W Hair Dye Cream of Butterfly Pea (*Clitoria ternatea* L.) Ethanol Extract with Tween-Span-Glycerin Combination	12.15-12.30
9.	Faridha Maera Lokana	OL2-09	Antioxidant Activity of Dewandaru Leaf (*Eugenia uniflora* L.) Ethanol Extract and Determination of Total Flavonoid and Phenolic Content	12.30-12.45
10.	Yance Anas	OL2-10	Development of Pentagamavunon-0 Synthesis: PGV-0 Isolation from the Rinse Solvent and Purification Improvement	12.45-13.00

*)Question and Answer session will be held along with the presentation

WHICAPS ORAL PRESENTATION
ROOM 3 (VIA ZOOM MEETING)
MODERATOR: apt. Dewi Andini Kunti Mulangsri, M.Farm.

No	Name	Code	Title	Time
1.	Poppy Anjelisa Zaitun Hasibuan	OD01	In Silico Investigation of Potential Poly(Adp-Ribose) Polymerase (Parp) Inhibitors Of Steroidal Saponins From *Vernonia amygdalina* Delile. Leaves	10.30-10.45
2.	Maria Caecilia Nanny Setiawati	OD02	Evaluation of Drug Use for Acute Respiratory Infections in Pediatrics Outpatients Gunung Sawo Mother and Child Hospital	10.45-11.00
3.	Erika Indah Safitri	OD03	Quantification of Flavonoids and Phenolics from Ethanol Extract of Mango (*Mangifera indica* L.) Peel and Seed of Arummanis and Manalagi Varieties	11.00-11.15
4.	Vivi Asfianti	OD04	Antioxidant Activity and Determination Of Total Flavonoids And Total Phenol Of *Amorphophallus muelleri* Blume Leaves, Stems, Tuber Peels And Tubers Extracts	11.15-11.30
5.	Eni Masruriati	OD05	Milkfish (*Chanos chanos*) Preservation Application With Shellfish Waste	11.30-11.45
6.	Aminah Dalimunte	OD06	In Silico Analysis of Chemical Compounds From *Litsea cubeba* Lour. As Human Epidermal Growth Factor Receptor 2 (Her-2) Inhibitor	11.45-12.00
7.	Mahatir Muhammad	OD07	Antioxidant Activity of Ethanol Extract Of *Saurauia vulcani* Korth. Leaves	12.00-12.15
8.	Eva Diansari Marbun	OD08	Formulation of Leaf Ethanol Extract Nanocream Australian Guava (*Psidium guajava* L.) as A Skin Moisturizer	12.15-12.30
9.	Godeliva Adriani Hendra	OD09	The Impact of Ngoko Javanese Pictogram-based Pocketbook using the CBIA method as an educational medium to the Knowledge, Perception, and Adherence of Tuberculosis Patients	12.30-12.45
10.	Modesta Harmoni Tarigan	OD10	Investigation In-Vitro of Anthelmintic Activity of Pegagan (*Centella asiatica* (L). Urb) in Adult Earthworms (*Pheretima posthuma*)	12.45-13.00

*)Question and Answer session will be held along with the presentation

Invited Speakers

Dr. Yashwant Pathak

Dr. Yashwant Pathak has over 15 years of versatile administrative experience in an Institution of Higher education as a Dean (and over 30 years as faculty and as a researcher in higher education after his Ph.D.). Now holds the position of Associate Dean for Faculty Affairs and Tenured Professor of Pharmaceutical Sciences.

Dr. Yashwant Pathak is an internationally recognized scholar, researcher, and educator in the areas of Health care education, Nanotechnology, Drug Delivery Systems, and Nutraceuticals. Traveled over 80 countries and gave talks in many universities, offered workshops and chaired sessions, and was a keynote speaker at many national and international conferences.

His major achievements from 2015-2022 in international area includes:

1. **Fulbright Senior Scholar Core Fellowship Award** 2015-2016 for Indonesia (visiting Surabaya (Ubaya) University, Surabaya, Indonesia from Jan till July 2017)
2. **Endeavour Executive fellowship by Australian Government** 2015 in collaboration with Deakin University to work on siRNA delivery
3. **Prometeo Fellowship award from Ecuador Government, 2015**
4. **CNPQ Brazil Government Fellowship**, visiting PUCRS in Porto Alegre every year for one month from 2015 till 2017 working on space pharmaceuticals and microgravity impact on stability of drug delivery systems
5. **Outstanding Global Engagement Achievement Award** by University of South Florida, a unique award given to only one faculty/administrator annually
6. **Fellow of NSF I-Corps USF 2016**
7. **Outstanding Faculty Award from USF March 2017**
8. **Fulbright Specialist fellowship 2019 for South Africa**
9. **Outstanding faculty award** from University of South Florida 2020
10. **Elected as Fellow of American Association for the Advancement of Sciences (FAAAS)**
11. **Award for Excellence in Pharmaceutical Nanotechnology from Venous International Foundation India for the year 2022 (to be awarded on 11th June 2022)**
12. **Outstanding faculty Award** from USF the year 2021-2022

He has published extensively with over 50 edited volumes in the area of nanotechnology, drug delivery systems, artificial neural networks, conflict management and cultural studies. Elsevier, John Wiley and Sons, Springer, Taylor and Francis, Informa Healthcare and many other International Publishers publish his books (https://www.amazon.com/Books-Yashwant-Pathak/s?rh=n%3A283155%2Cp_27%3AYashwant+Pathak).

He has published over 350 research papers, reviews, and chapters in the books (https://scholar.google.com/citations?user=aqah7JAAAAAJ&hl=en) and presented in many National and International conferences.

He is also actively involved in many nonprofit organizations, to mention a few, Sewa International USA, International Accreditation Council for Dharma Schools and Colleges (IACDSC.org), International Commission for Human rights and religious freedom (ICHRRF.org), Uberoi Foundation, SEWA for Ameri-Indian Collaborative efforts, RIWATCH (established I North East India), and many more.

doc. Dr. sc. Zrinka Puharić, dr. med. Spec.

doc. Dr. sc. Zrinka Puharić, dr. med. Spec. enrolled in the study of medicine at Medical Faculty of the University of Zagreb Croatia in 1992-1998;

In 2004 she completed a specialization in School and Adolescent Medicine (Ministry of Health of the Republic of Croatia);

In 2007, she received a master's of science degree from the Faculty of Medicine in Zagreb entitled "Assessment of needs and requirements for the contents and methods of health education work in primary and secondary schools";

In 2012, she received Ph.D. from the Faculty of Medicine in Osijek entitled "Relationship between the level of nutrition of adolescents and factors that affect socio-cultural attitudes about physical appearance and satisfaction with appearance";

In 2015, she completed a specialist study at the Faculty of Food Technology Osijek with a dissertation entitled "Eating habits and socio-economic factors that affect the level of nutrition of fifth grade students in Bjelovar-Bilogora County" and acquired the title of university specialist of nutrition;

Since 2004, she has been the head of the School Medicine Service of the Public Health Institute;

From 1.11.2013. become head of the Professional Study of Nursing in Technical College Bjelovar;

From 1.10.2016. she is the dean of the University of Applied Sciences Bjelovar; teaching Public Health, Hygiene and Epidemiology, Dietetics

On May 28, 2018, she was elected to the scientific teaching title of assistant professor in the scientific field of Biomedicine and Health, in the field of Public Health and Health Care;

On September 4, 2018, she was elected to the teaching position of a high school professor in the scientific field of Biomedicine and Health;

She is the author or co-author of 76 professional / scientific articles and 75 presentations at congresses; and very active in Erasmus program all around world.

Ranjita Shegokar Ph.D.

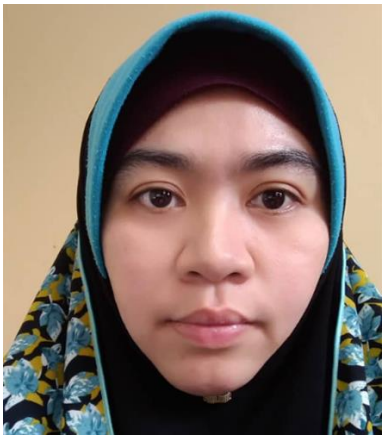
Ranjita Shegokar holds a Ph.D. degree in Pharmaceutical Technology from the SNDT University, India, and has been a postdoctoral researcher in the Department of Pharmaceutics, Biopharmaceutics and NutriCosmetics at the Free University of Berlin, Germany.

For the last nine years she has been working with various multinational pharmaceutical companies in technical/R&D leadership roles. Currently, she serves as a Director of Pharma Business Unit at Capnomed GmbH, Germany.

She has authored several research articles, book chapters, and presented her research in many national/international conferences. She has filed multiple patent applications in the area of drug delivery and targeting. Besides that, she has edited many trending books in the area of pharmaceutical nanotechnology and drug delivery aspects.

For her research, she has received many prestigious national and international awards. Her areas of interest include polymeric nanoparticles, nanocrystals, lipid nanoparticles (SLNs/NLCs), nanoemulsions, cancer drug targeting and the role of excipients in delivery systems.

Assoc. Professor Dr. Farahidah Mohamed



Assoc. Professor Dr. Farahidah Mohamed, a Muarian, received BSc.in Pharmacy from Strathclyde University in 1999, used to work at the community pharmacies and government hospitals before decided to pursue PhD in 2004. She obtained her PhD in 2008 from Strathclyde Institute of Pharmacy and Biomedical Sciences, Scotland.

She has been leading various research projects funded by various agencies & ministries. She had also received industrial grants to lead and coordinate GMP-associated trainings. She had participated in more than 30 international conferences, has more than 30 publications and had supervised more than 17 postgraduate master and PhD students.

Total research grants received amounting RM 2.4 million as PI for 9 research projects. She was with IKOP Sdn Bhd as Acting CEO from August 2014 and left IKOP for good in Jan 2021. Recently, she has been appointed as Deputy Director, Innovation and Commercialisation Unit, RMC IIUM.

Currently her research team focusing on designing various dosage forms by fusioning contemporary medicine with prophetic/natural/traditional products with the aim to create synergistic effects, to reduce overall toxicity, to improve compliance and to reduce the overall treatment cost. FOUR of her researched products have been commercialised and she had become one of the finalists for the Award of Malaysia Commercialisation Year (MCY), organised by MOSTI in 2017. While with IKOP, towards the end of 2017, IKOP has been awarded a government tender to supply her research products, namely iGESIC and iSALIC for 4 years with tender value ~ RM5 mil.

She has been invited as speakers or panelist in various platform in Ministry of Health, several universities and international levels. She is also a committee member of DUNAS (Dasar Ubat Nasional) Halal Technical committee. She has been nominated by IIUM as Merdeka Award nominees for 2016.

Being an academician, she also received several awards at several international conferences. In 2016, she received the Most Outstanding Researcher Award, at CREAM IIUM. In 2018, she was the Top Most MyRa contributor for IIUM, a recognition received during IIUM Quality Day.

In 2019, she received the first Commercialisation Award during IIUM Takrim Day. She had and has been appointed as External Examiners for Undergraduate Programs at International Medical University Malaysia, Unisza and UniKL. LATEST, ONE more of her researched products just received MAL No. from NPRA (National Pharmaceutical Regulatory Agency, i.e Paracetamol Honey suspension), however yet to be launched.

apt. Indra Bachtiar, Ph.D.

EDUCATION

Postdoctoral at Laboratorium of Biophysical Chemistry, National Heart, Lung, and Blood Institute (NHLBI), National Institute of Health (NIH), Bethesda, Maryland, USA (2002-2005)

Ph.D., Department of Pharmaceutical Molecular Biology, Graduate School of Pharmaceutical Sciences, Tohoku University, Aoba, Aramaki, Aoba-ku, Sendai 980-8578, Japan (2002)

Department of Chemistry, ITB (1992)

PROFESSIONAL POSITIONS

- Director of PT Tristem Medika Indonesia, Solo, (2020-present)
- Research Committee Members at Markas Besar Kepolisian Indonesia, **MABES POLRI-INDONESIA**
- Senior Consultant on cGMP Stemcell Facility and Manufacturing at **Kalbe Farma (2019-2021)**
- Project Leader of Allogeneic "off the self" Mesenchymal Stemcell, **PT Bifarma, Kalbe Farma, Tbk, (2017-2019)**
- Principal Investigator at Stem Cell and Cancer Institute Indonesia -**SCI-INDONESIA (2010-2019)**
- Head of Proteomic and Genomic Core at Mochtar Riady and Cancer Institute (MRIN), **Siloam Hospital, Lippo Karawaci (2005-2010)**
- Staff Scientist at Laboratorium of Biophysical Chemistry, National Heart, Lung, and Blood Institute (NHLBI), National Institute of Health (NIH), **Bethesda, Maryland, USA (2003-2005)**
- **Reviewer at Elsevier Publisher**, Bentham Science Publisher, Springer *and* BMC-Proteome Science (2006-present)

ACHIEVEMENT

- **MONBUSHO Scholarship**, Japan, 1998.
- **Intramural Research Training Award, IRTA**, National of Heart, lung and Blood Institute, NIH, Bethesda, USA, 2002-2004

PATENT

- Combination of Alpha-1-Acid Glycoprotein and Alpha-Fetoprotein as an Improved Diagnostic Tool for Hepatocellular Carcinoma", ***Patent Registered*** in Australia.

PUBLICATIONS

Textbook

- INTECH Open Science Textbook Chapter, Hypoxia in Mesenchymal Stem Cell, Chapter 5, Thomson Reuters, ISBN 978-953-51-2896-0. (2017)
- Erlangga Medical Series, E-Book Mesenchymal Stem Cell, (2020)

Selected Articles

- ***Stem Cell Research***, Volume 50 (2021),102137. Establishment human induced pluripotent stem cell line from idiopathic non-familial Parkinson's disease patient using self-replicating RNA vector
- ***Natural Product Research*** (2021),1981316, Remineralization and antibacterial/antibiofilm effects of toothpaste containing nanohydroxyapatite and Curcuma aeruginosa extract
- ***Stem Cell Research***, 47 (2020) Generation of human induced pluripotent stem cell line from Alzheimer's disease patient with PSEN2 N141I mutation using integration-free non-viral method
- ***Key Engineering Materials***, 840, (2020) The Porosity and Human Gingival Cells Attachment of Synthetic Coral Scaffold for Bone Regeneration
- ***Clinical Nutrition Experimental***, 34-44, 24. (2019), Growth factors profile in conditioned medium human adipose tissue-derived mesenchymal stemcells (CM-hATMSCs)
- ***Wound Medicine,*** (2018), 12-15. Effect of platelet-rich plasma and carbonated hydroxyapatite combination on cranial defect Bone Regeneration: An animal study,
- ***Mol.Cell Bio,*** (2018), vol 2, no2, Direct and Indirect Effect of TNFα and IFNγ Toward Apoptosis in Breast Cancer Cells
- ***Bioscience Research,*** **(**2017) 14(4): 776-787, Interleukins and VEGF secretome of human wharton's Jelly mesenchymal stem cells-conditioned medium (WJMSC-CM) in different passages and oxygen tensions
- ***BMC Immunology,*****12:4, doi: 10.1186/1471-2172-12-4.** "Immunoregulatory effects of AFP domains on monocyte-derived dendritic cell function"
- ***Biochemistry,*** 47, 1928-1937, Solution NMR Characterizations of Oligomerization and Dynamics of Equine Infectious Anemia Virus Matrix Protein and Its Interaction with PIP2
- ***Clinica Chimica Acta.,*** **399,** Combination of Alpha-1-Acid Glycoprotein and Alpha-Fetoprotein as an Improved Diagnostic Tool for Hepatocellular Carcinoma

BMC Research Notes, **3:319. "Utility of -1-Acid Glycoprotein and Des- - Carboxy Prothrombin, Alone or in Combination, as Biomarker for Hepatocellular Carcinoma".**

apt. Halim Priyahau Jaya, S.Farm., M.Farm.Klin.

apt. Halim Priyahau Jaya, S.Farm., M.Farm.Klin. graduated as a pharmacist from Universitas Airlangga in 2009, then continued the master degree in the same college, and graduated in 2012.

He improved his knowledge and experience in clinical pharmacy's field by following various training session. In 2016 he was included in training of trainers for the Indonesian Trainer Health Programme. In the same year he followed another training of trainers session focused on Cytotoxic Handling & Aseptic Dispensing. And in the 2020 he completed his mentor capability by following the training of trainers for Clinical Educator.

He is currently a clinical pharmacist in Dr. Soetomo Central Hospital since 2011. At the same times he was a head pharmacist for Kogabwilhan 2 Provisional Hospital (2020-2021) and Bangkalan Provisional Hospital (2021-now). He was also involved in improving the higher educational of pharmacist by supervising the students in internship programme in clinical pharmacist field.

To expand the social networking, he is a member of Indonesian Pharmacist Association and was chosen as a secretary of Hospital Pharmacist Interest Group inside the association. And also a member of Compartment to Improve the Quality of Patient Care in PERSI East Java Region.

Abstract of Participants

Oral Presentation Room 1
Code: OL1-01

Anti Aging Activity of Apple Stem Cell and Niacinamide Combination Serum in Rats

Fahri Mubin [1], Risha Fillah Fithria [2*], Junvidya Heroweti [2]

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ABSTRACT

Background: Wrinkles are representation of skin aging due to various factors like UV light exposure, where combination of antioxidant activity from niacinamide and cell activity regulators with antioxidants from *apple stem cell*s can be the right combination as *anti aging*. **Objectives:** This study aims to determine the *anti aging* activity from combination of 2% *apple stem cell*s and 10% niacinamide serum in rats induced by UVB light. **Material and Methods:** This research is an experimental study with a post test control group design. *Anti aging* activity test using 15 Wistar rats induced by UVB light 20 minutes/day for two weeks. The test was divided into 5 groups, namely K1 (control without treatment), K2 (negative control, serum base), K3 (serum *apple stem cell* 2%), K4 (serum niacinamide 10%), K5 (serum combination *apple stem cell* 2 % and niacinamide 10%). The treatment given 5 days a week for 2 weeks. Wrinkles, erythema, and exfoliation were observed and scored on day 14 and statistically analyzed by Kruskall Wallis and Mann Whitney test at 95% confidence level. **Results:** The result of statistical analysis showed that K5 is significantly difference ($p < 0,05$) with K3 and K4 in wrinkles, but there was no significant difference ($p > 0,05$) with K3 in erythema and K4 in exfoliation. However, K5 had the lowest average scores of wrinkles, erythema, and exfoliation compared to K3 and K4. **Conclusions:** Combination serum of 2% *apple stem cell* and 10% niacinamide exhibits *anti aging* activity and proved to be more effective when compared to 10% niacinamide serum and 2% *apple stem cell* serum.

Keywords: *anti aging*, UV rays, *apple stem cell*, niacinamide serum

Oral Presentation Room 1

Code: OL1-02

Antiacne Activity of Combination Apple Stem Cell and Niacinamide Serum in Rabbit Induced *Propionibacterium acnes*

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ABSTRACT

Background: Acne is caused by various factors, one of which is P. acnes bacterial infection which can be treated with active compounds in plants, one of which is flavonoids in apple stem cells and niacinamide which has antibacterial and anti-inflammatory properties. **Objectives:** This study aims to determine the antiacne activity of the combination of apple stem cell and niacinamide serum in rabbits induced by P.acnes. **Material and Methods:** This is an experimental study with pre and post-test control group design. Antiacne activity test used 6 rabbits whose backs were shaved in 4 different areas of (3x3) cm^2/area than 0.2 ml of *P.acnes* bacterial suspension ($3x10^9$ CFU/mL) was induced intradermally. After acne appeared within 24 hours, erythema diameter was measured on day 1 and treated twice daily for 15 days: K1 positive control (clindamycin phosphate gel 1%), K2 negative control (serum without active substances), K3 (serum niacinamide 10%) and K4 (serum combination of Apple stem cell and niacinamide). Erythema diameter decrease on day 15^{th} was statistically analyzed using one-way ANOVA and Post Hoc Tukey with a 95% confidence level. **Results:** The result showed that the serum combination of apple stem cell and niacinamide exhibits antiacne activity with a decrease in erythema diameter of 1,15±0,06 cm^2. **Conclusions:** The combination serum has no significantly different antiacne activity compared to serum niacinamide 10%.

Keywords: antiacne, apple stem cell, niacinamide, *Propionibacterium acnes*.

Oral Presentation Room 1

Code: OL1-03

Formulation of Lipgloss of Liposome Coenzyme Q10 with Variation Candelilla Wax

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ABSTRACT

Background: The skin lips become part of the body having more dense and sensitive properties, For that, added antioxidants too. The coenzyme Q10 is a powerful antioxidant that are unstable and susceptible to light, heat, and oxygen. To solve the problem, a forming coenzyme Q10 in the liposome system. Wax is the primary component used as the lip gloss manufacturing base. **Objectives:** This study has identified the characteristics of lipgloss liposome coenzyme q10 base candelilla wax. **Material and Method:** Lipgloss formulation had been made with composition variation candelilla wax by F1 (2%);F2(3%);F3(4%). 0,1% Nipagin was dissolved in paraffin liquidum (massa I). 10% Lanolin mixed with candelilla wax was melted down by the water (Massa II). Mix the massa II and the massa I, and stir it up to a homogenous (Massa III). 20% Liposome coenzyme Q10 and vanilla are added to the Massa III. Ready characteristic evaluations include organoleptic, homogeneity viscosity, dispersibility, adhesion, and ph. **Results:** Based on research on lipgloss liposome coenzyme q10 with variations of candelilla wax as the basis has organoleptic and homogeneity testing results that produce a thick texture, a pale-yellow color, the aroma of vanilla, and a hint of homogenized glue. The increase of candelilla wax results in increased viscosity value is 0,66 Pa.s to 0,91 Pa.s and adhesion 4,87s to 8,84 s. Based on test viscosity and adhesion values, as well as the ph that meets the requirements. But based on a hedonic test where formula 1 is the most preferred formula by panels. However, an increase in the concentration of candelilla wax caused a decrease in the value of dispersibility. **Conclusions:** The liposome coenzyme Q10 is suitable for the preparation of lip gloss and panels most preferred on formula 1(2%).

Keywords: candelilla wax, coenzyme q10, liposome, lipgloss.

Oral Presentation Room 1

Code: OL1-04

Comparative In Vitro Dissolution Test of Some Commercially Available Generic and Innovator Glimepiride Tablets in Semarang, Indonesia

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ABSTRACT

Background: Glimepiride is an oral anti diabetic that helps control blood sugar levels used together with exercise and diet in adults with type 2 diabetes mellitus. Glimepiride is a third-generation sulfonylurea that acts to lower blood glucose by stimulating the release of insulin from pancreatic β-cells and helping the insulin receptor use insulin efficiently. It is therefore necessary to investigate how equivalent or otherwise the generics are to the innovator brand. **Objectives:** The aim of this work was to compare the dissolution parameters of four marketed generic of glimepiride 2 mg available in Indonesia and that of the innovator brand to assess the suitability of their interchangeability. **Material and Methods:** The in vitro equivalence test was carried out in three different media (pH 1.2, pH 4.5, and pH 6.8). USP dissolution apparatus 2 (paddle) was used at 75 rpm with 500 mL of dissolution medium at 37 ± 0.5 °C. The dissolution samples were assayed for the drug compounds using an ultraviolet spectrophotometer. Test results were subjected to analyses of similarity factors (f2). **Result:** Assay of selected tablets revealed that all samples contained over 98% (w/w) of labeled chemical content. The generic and innovator brand had similar drug content. At pH 1.2 and 4.5, the generic products were considered therapeutically equivalent to the reference product based on similarity factor ($f2 > 50$); however, at pH 6.8, there were 2 generic products differences in dissolution performance based on f2 values below the acceptable range ($f2 < 50$). **Conclusions:** Based on the similarity demonstrated between the generic and innovator brands, the data indicated that only 2 generic products may be used interchangeably.

Keywords: comparative dissolution, glimepiride, similarity, interchangeability

Oral Presentation Room 1

Code: OL1-05

Application of Lakes System in Formulation W/O Hair Dye Cream of Red Dragon (*Hylocereus polyrhizus*) Fruit Peel Juice with Tween-Span-Propylene Glycol Combination

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ABSTRACT

Background: Dragon fruit peel contains red-violet pigment betacyianin, which have natural coloring potential but are very unstable in certain pH, light, temperature and easily oxidized. The lakes system can bind substrates that are not water-soluble that can increase the stability of natural pigment like betacyanin. The combination of Tween-Span-propylene glycol as surfactant and cosurfactant can affect the characteristics of cream formulation. **Objectives:** This study aimed to know the application of the lakes system in the formulation of W/O hair dyes pomade cream of red dragon fruit peel juice with tween-span-propyleneglycol. **Material and Methods:** The lakes system was made with composition of 50% Dragon fruit peel juiced followed by drying using freeze dryer, 45% of aerosil, 5 % of alucol, and followed by making a 3 W/O cream formulation with composition Tween-Span-Propylene glycol variation by F1(5:10:20), F2(5:15:12,5), F3(7,5:15:5) **Results:** The comparison of variation of tween 80 with span 80, tween 80 with propylene glycol, propylene glycol with span 80 on adhesion test, test dispersion, viscosity test, and PH in the statistic result had showed that there had not been difference p> 0.05. **Conclusion:** The combination of variations of the tween-span-propyleneglycol emulsifier showed no effect on the physical characteristics of the cream preparation.

Keywords: cream, formulation, lakes system, red dragon, tween-span-propylene glycol.

Oral Presentation Room 1

Code: OL1-06

Anti Acne Activity of Mint Leaves (*Mentha piperita*) Ethanol-Methanol Extract in Rabbits Induced by *Propionibacterium acnes*

Anisatuz Zahro' Atsabitah [1], Risha Fillah Fithria [2*], Junvidya Heroweti [2]

[1*]*Undergraduate Programme, Faculty of Pharmacy, Universitas Wahid Hasyim, Semarang, Indonesia.*
[2]*Departement of Pharmacology and Clinical Pharmacy, Faculty of Pharmacy, Universitas Wahid Hasyim, Semarang, Indonesia.*

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ABSTRACT

Background: Acne is a skin disease that can be caused by the bacteria *Propionibacterium acnes*. Mint leaves (*Mentha piperita* L.) contain flavonoid compounds which are thought to have antibacterial and anti-inflammatory properties that can help with acne treatment. **Objectives**: This study aimed to determine the antiacne activity of etanol-methanol mint leaf extract (EEMDM) against *Propionibacterium acnes* bacteria and to determine the flavonoid content of the extract. **Material and Methods**: This research is an experimental study with pre and post test control group design. Mint leaves were extracted by maceration method using ethanol (70%) – methanol as a solvent. Five rabbits were induced by 0.2 mL of *P.acnes* bacterial suspension with a concentration of 10^9 CFU/mL intradermally on the backs of previously shaved rabbits and divided into 5 areas with an area of 9 cm^2 each and allowed to stand until pimples appeared. The area was treated with 1 mL each for K1 as a positive control group (Clindamycin 2%), K2 as a negative control group Dimethyl sulfoxide (DMSO), and K3 – K5 treatment groups (30%, 35% and 40% EEMDM). The decrease in the diameter of erythema on the rabbit's back was measured on days 1 and 15, then analyzed using the one-way ANOVA test (Analysis of Variance Test) and continued with the Post Hoc Tukey. **Results**: The average of diameter decrease in EEMDM (30%, 35%, 40%) was 1.05 cm, 1.26 cm, and 1.27 cm, respectively, while the negative control (DMSO) was 0.69 cm. The results showed that all concentrations of were significantly different from the negative control with statistical analysis. The total flavonoid level of EEMDM was 3.398 ± 0.0199 mgQE/gram. **Conclusion**s: The analysis showed that the ethanol-methanol extract of mint leaves exhibits anti-acne activity.

Keywords: ethanol-methanol extract, mint leaves, *Propionibacterium acnes*

Oral Presentation Room 1

Code: OL1-07

Evaluation of In Vitro Equivalence of Some Commercially Available Glimepiride Branded Generic and Innovator Tablets in Indonesia

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ABSTRACT

Background: Glimepiride is an oral antidiabetic drug which belongs to the sulfonylurea group with hypoglycemic activity for patients with type 2 diabetes mellitus. Glimepiride reduces blood glucose by stimulating the release of insulin from pancreatic β-cells, decreases glucose output from the liver, and increases insulin sensitivity at peripheral target sites. It is therefore necessary to investigate how equivalent or otherwise the generics are to the innovator brand. **Objectives:** This study was aimed to evaluate the in vitro equivalence of four marketed branded generic of glimepiride 2 mg available in Indonesia and that of the innovator brand to establish interchangeability. **Material and Methods:** The in vitro equivalence test was carried out in three dissolution media were USP buffer solutions at pH 1.2 (hydrochloric acid solution), pH 4.5 (acetate buffer solution), and pH 6.8 (phosphate buffer solution). USP dissolution apparatus 2 (paddle) was used at 75 rpm with 500 mL of dissolution medium at 37 ± 0.5 °C. The dissolution samples were assayed for the drug compounds using an ultraviolet spectrophotometer. Test results were subjected to analyses of similarity factors (f2). **Result:** Assay of selected tablets revealed that all samples (four products) contained in the range 90.0%-110.0% (w/w) of labeled chemical content. The generic and innovator brand had similar drug content. At pH 4.5 and 6.8, the generic products were considered therapeutically equivalent to the reference product based on similarity factor ($f2 > 50$); however, at pH 1.2, one generic product differences in dissolution performance based on f2 values below the acceptable range ($f2 < 50$). **Conclusions:** Based on the similarity demonstrated between the generic and innovator brands, the data indicated that only 3 from four branded generic products may be used interchangeably.

Keywords: glimepiride, in vitro equivalence, similarity factors (f2).

Oral Presentation Room 1

Code: OL1-08

Formulation and Characterization of Liposome Coenzyme Q10 with Variations in Cholesterol Concentrations

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[2]*Departement of Pharmaceutical and Technology, Faculty of Pharmacy, Universitas Wahid Hasyim, Semarang, Indonesia.*
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ABSTRACT

Background: Coenzyme Q10 contains antioxidants that have unstable properties to light and lipophilic, so to overcome this instability a liposome delivery system is needed, that can increase the stability of active substance. **Objectives:** This study was to determine the characterization of the liposome coenzyme Q10 produced with variations in cholesterol concentration. **Material and Methods:** Coenzyme Q10 was encapsulated in a liposome delivery system with various concentrations of cholesterol FI;300, FII;600 and FIII;900 mg using a thin layer hydration and sonication method, made with the constituent components of soy lecithin, cholesterol and chloroform characterized through the pH Test, entrapment efficiency, particle size, polydispersion index and morphology. **Results:** Based on the results of the study, liposomes coenzyme Q10 with cholesterol variations have organoleptic test results that produced a liquid texture, yellow color, and soybean aroma. The results of the measurement of the pH ranged from 4.87 to 5.11. The entrapment efficiency resulted in formulation I of 95.56%, Formula II of 96.95% and Formula III of 97.88%. The particle size ranged from 157.9 to 185 nm and the polydispersity index ranged from 0.174 nm to 0.406 nm, while the results of the morphological test showed that the globules were spherical. **Conclusion:** Based on the results of the study, liposome coenzyme Q10 has good characterization to be used.

Keywords: coenzyme Q10, liposome, liposome characterization

Oral Presentation Room 1

Code: OL1-09

Lipgloss Liposome Formulation Coenzyme Q10 with Ozokerite Wax Variations as a Base

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ABSTRACT

Background: The main cause of dry and cracked lips is the low capacity of the moisture corneum and the less effective function of the barrier. The problems that occur on lips can be overcome with antioxidants. Antioxidants are substances that effectively inhibit oxidation and suppress the establishment of free radicals. Coenzyme Q10 is an endogenous antioxidant substance non-enzymatic which has poor solubility in water and is easily oxidized. Coenzyme Q10 was encapsulated using a liposome system to improve the Q10 coenzyme properties. **Objectives:** This research is proposed to find out the characteristics of the lipgloss liposome coenzyme Q10 in the Ozokerite Wax base. **Material and Methods:** Ozokerite Wax is used as a base in lipgloss with F1 1%, F2 2%, and F3 3%. Lipgloss was prepared by mixing the first mixture(I) of paraffin liquid and nipagin, the second mixture(II) that contains Lanolin and Ozokerite was merged, homogenized the first mixture(I) and the second mixture(II) become the third mixture(III), 20% of Liposome Coenzyme Q10 and vanilla are put into the third mixture(III) stirred into homogeneous. The evaluation of the pharmaceutical dosage characteristics is carried out physically which includes organoleptic evaluation, homogeneity, viscosity, spreadability power, adhesion, and pH of the lipgloss dosages. **Results:** The Research of Lipgloss Liposome Coenzyme Q10 variation Ozokerite Wax base shows that lipgloss can be homogeneous with the organoleptic results in form of a thick texture, pale-yellow colored, and vanilla-scented, as well as the pH that meets the requirements with a pH range in between 4.5-7.5. The viscosity value of lipgloss F1, F2, F3 in consecutively of 0.577 Pa.S; 0.666 Pa.S; 0.816 Pa.S. The value of adhesion and spreadability power in lipgloss meets the range. **Conclusions:** Based on the hedonic test the most preferred formula of the panelists is the second formula(2) with the content of 2% Ozokerite Wax.

Keywords: coenzyme Q10, lip gloss, liposome, ozokerite wax.

Oral Presentation Room 1

Code: OL1-10

In Silico Screening of Piperine, Oleoresin and -Caryophyllene Compounds in Javanese Chili (*Piper retrofractum Vahl*) Against Cyclooxygenase-2 (Cox-2) Enzyme as Anti-Inflammatory

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ABSTRACT

Background: Inflammatory disease or often experienced by the body which is a mechanism to respond to infection and irritation. The cause of inflammation is due to the presence of the enzyme cyclooxygenase-2 (COX-2) so that it can be used as a target in the discovery and development of new drugs as anti-inflammatory from natural ingredients. **Objectives** This study aimed to examine the potential of the combination of piperine, oleoresin, and -caryophyllene compounds in Javanese chili (Piper retrofractum Vahl) in interacting with the cyclooxygenase-2 enzyme with the code pdb 6COX**.Materials and Methods** This research method uses molecular docking with piperine, oleorisin, beta-karyophyllene and a combination of the three as well as comparisons of ligands of eugenol, celecoxib and the enzyme cyclooxygenase-2. The research stages include the validation of the PDB code (6cox) using YASARA with an RMSD value of <2, preparation of the test ligand and comparison with MarvinSketch carrying out molecular docking with PLANTS and visualizing the docking results with LigPlot+ and PyMOL.**Results:** The results obtained are the RMSD value of 1.2156 . The docking values for the PDB code 6cox are native ligand (-77,495) piperine (-82,787), oleoricin (-82,913), -caryophyllene (-69,710) combination (-70,221), eugenol (-66,612), celecoxib (-91,675). **Conclusion:** The test compounds piperine and oleorisin have the potential to be developed as candidate anti-inflammatory models, although they are less potent than celecoxib.

Keywords: 6COX, Cyclooxygenase-2, Inflammatory, molecular docking

Oral Presentation Room 2

Code: OL2-01

Anti Hyperpigmentation Activity of Serum Combination of Apple Stem Cell and Niacinamide on the Skin of Male Guinea Pig (*Cavia porcellus*)

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ABSTRACT

Background: *Apple stem cells* are useful in overcoming premature aging and hyperpigmentation on the skin. Meanwhile, niacinamide has been shown to inhibit the increase in melanin. **Objectives:** This study aims to prove the anti hyperpigmentation activity of serum combination of *apple stem cell* and niacinamide on the skin of male guinea pigs. **Material and methods:** This research is an experimental study with a randomized matched posttest-only control group design. Hyperpigmentation on the skin of guinea pigs was induced by exposure to UV B 311 nm for 5 minutes per day, for 2 weeks. Fifteen guinea pigs with hyperpigmentation were divided into 5 treatment groups. These groups include: group I is positive control of Mellanox cream; group II is a negative control serum without active substances; Meanwhile, groups III, IV, and V, respectively, are serum niacinamide group, serum combined with *apple stem cell* and niacinamide group, and the group that was not given any treatment; and group VI is a normal group. Each preparation was applied thinly and evenly on the skin of the guinea pig. All treatments were given topically and carried out at night for 2 weeks. On day 29, a tissue biopsy was performed with Masson Fontana staining. The percentage area of melanin was calculated by the image digital analysis method. Then, it was analyzed statistically using the Kruskal Wallis Test and continued with the Mann Withney Test with a 95% confidence level. **Results:** The results showed that the serum combination of *apple stem cell* and niacinamide exhibits anti hyperpigmentation activity. **Conclusions:** Serum combination of *apple stem cell* and niacinamide has no significantly different activity single from serum niacinamide.

Keywords: apple stem cell, anti hyperpigmentation, niacinamide.

Oral Presentation Room 2

Code: OL2-02

Application of Lakes System in Formulation O/W Hair Dye Cream of Red Dragon Fruit (*Hylocereus polyrhizus*) Peel Juice with Tween-Span-Glycerine Combination

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ABSTRACT

Background: Red dragon fruit peel (*Hylocereus polyrhizus*), has potential as a natural dye but, easily oxidized and unstable to light, the use of a lake system was chosen to increase stability in cream preparation. The combination of tween-span-glycerin as a surfactant and cosurfactant determines the characteristics of the cream preparation. **Objectives**: The purpose of this study was to determine the effect of the combined concentration of tween-span-glycerin on the characteristics of the Lakes hair coloring cream for hair coloring. Red Dragon Fruit (*Hylocereus Polyrhizus*) skin extract with the combination of Tween-Span-glycerin. **Material and Methods:** Red dragon fruit peel extract is obtained by making red dragon fruit peel juice and then dried using the freeze-drying method. The lakes system was made with a mixture of red dragon fruit peel extract, allucol and aerosol in a ratio (10:1:9) followed by the manufacture of 3 cream formulations with variations in the tween-span-glycerin combination, namely F1 (5:5:10), F2 (5:10:10), F3 (15:5:10). The preparations were tested for their physical characteristics and the data obtained were then analyzed. **Results:** The comparison of the combination of tween 80 with span 80 in the test of adhesion, spreadability and viscosity did not affect the physical characteristics of the preparation because it had a significance value of $p > 0.05$. **Conclusion:** There is no effect caused by variations in the concentration of the combined tween-span-glycerin on the physical characteristics of the cream preparation.

Keywords: cream, formulation, lakes system, red dragon fruit peel juice, tween-span-glycerine.

Oral Presentation Room 2

Code: OL2-03

Application of Lakes System in Formulation W/O Hair Dye Cream of Butterfly Pea (*Clitoria ternatea* L.) Ethanol Extract with Tween-Span-Propylene Glycol Combination

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ABSTRACT

Background: Butterfly pea (*Clitoria ternatea* L.) contains purple anthocyanins, which have natural coloring potential but are unstable and readily oxidized owing to temperature and high light intensity. The lakes system can bind substrates that are not water-soluble. The features of the cream formulation are determined by the combination of Tween-Span-Propylene glycol as surfactant and co-surfactant. **Objectives:** This study aims to determine the effect of variations in the combination of Tween-Span-Propylene glycol on the characteristics of the preparation of W/O hair dye cream containing butterfly pea (*Clitoria ternatea* L.) ethanol extract in a lake system. **Material and Methods:** Butterfly pea ethanol extract was obtained by maceration method using 70% ethanol solvent, followed by drying using a rotary evaporator. The lake system was made with a ratio of 10% butterfly pea ethanol extract, 1% alukol, and 9% aerosol, followed by making the best Tween-Span-Propylene glycol combination cream, namely F1 (5:10:20), F2 (7.5:10:12,5), F3 (7.5:5:5). **Results:** the comparison of variations in tween 80 with span 80, tween 80 with propylene glycol, propylene glycol with span 80 on the adhesion test, dispersibility test, viscosity test, and PH test had no effect on $p>0.05$. **Conclusions:** The combination of variations of the tween-span-propyleneglycol emulsifier showed no effect on the physical characteristics of the cream preparation.

Keywords: formulation, lakes system, cream, tween-span-propylene glycol.

Oral Presentation Room 2
Code: OL2-04

Antibacterial Activity of Ethanol-Methanol Extract of Mint Leaves (*Mentha piperita* L.) Against *Propionibacterium acnes* Bacteria

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ABSTRACT

Background: Acne can be caused by the bacteria *Propionibacterium acnes*. These bacteria are thought to be inhibited by the presence of active compounds in the plant, one of which is mint leaves (*Mentha piperita* L.). **Objectives**: This study aims to determine the presence of active compounds in the ethanol-methanol extract of mint leaves (EEMDM) against *P. acnes* bacteria, in addition to knowing the presence or absence of antibacterial activity and differences in antibacterial activity at each concentration of EEMDM. **Material and Method**: Mint leaves powder was macerated using 70% ethanol and methanol (1:1) and then evaporated with a rotary vacuum evaporator to form a thick extract. The ethanol-methanol extract of mint leaves was made into a series of concentrations of 200 mg/mL; 250 mg/mL; 300 mg/mL; 350 mg/mL; and 400 mg/mL for the antibacterial activity test of the disc diffusion method. DMSO solvent was used as a negative control and clindamycin 2 µg/disk was used as a positive control. The parameter of the antibacterial activity test is the diameter of inhibitory area which was analyzed statistically by using the one-way ANOVA test and then followed by the Pos Hoc Tukey test. **Results**: The results showed that EEMDM contains active compounds, namely flavonoids, phenolics and saponins. The ethanol-methanol extract of mint leaves also exhibits antibacterial activity against *P. acnes*. Statistical results showed that there was a significant difference in the DDH values by the concentration series of EEMDM, clindamycin 2 µg/disk (positive control) and DMSO (negative control). **Conclusion**: The ethanol-methanol extract of mint leaves has antibacterial activity against *P. acnes*.

Keywords: Ethanol-methanol extract mint (*Mentha piperita* L.) leaves, Antibacterial, *Propionibacterium acnes*

Oral Presentation Room 2

Code: OL2-05

The Use of Cellulose Extract from Alang-Alang (*Imperata cylindrica* l.) as Fillers and Disintegrant of Paracetamol Tablet

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ABSTRACT

Background: According to the data obtained from the Health Ministry in Indonesia to date 2021, more than 90% of the medicine production is dependent on raw material drug imports. In addition to the active ingredients, excipients are needed to produce drugs, one of which is cellulose. *Imperata cylindrica* L. has α-cellulose content of over 40%. A short growth cycle with the enormous number of plants, but not appropriate for food animals, the lack of commercial application of reeds, and a high cellulose content made it could be developed as one of the ingredients of tablet filler and disintegrant. **Objectives**: This research was conducted to observe the optimal use of the cellulose concentration from extracts of *Imperata cylindrica* L. and the quality of the resulting granule and tablet with the wet granulation method. **Material and Methods**: The method used for the extraction of α-cellulose from reeds is delignification using 3.5% HNO_3 and $NaNO_2$. Then digested with 2% NaOH and 2% Na_2SO_3. Bleaching was carried out with 1.75% NaOCl solution, then filtered and washed until the pH of the filtrate was neutral. Cellulose obtained was purified from the sample with 17.5% NaOH solution followed by bleaching with 10% H_2O_2. Furthermore, it was characterized by FTIR spectroscopy. Followed by the manufacture of tablets by wet granulation with three different formulations of cellulose and Avicel, testing the quality characteristics of granules and tablets and dissolution. Data were analyzed using Simplex Lattice Design Method using Design Expert Software. **Results**: A combination of *Imperata cylindrica* L cellulose and Avicel PH 101 in granule characteristics affect particle size distribution characteristics, % fines, and flow rate which did not meet the requirements, whilst the moisture content, angle of repose, and compressibility met the requirements. The quality characteristics of paracetamol tablets combination of cellulose and Avicel PH 101 did not meet the requirements of the hardness of tablets and disintegration time. The dissolution test of the three formulas met the requirement. **Conclusion**s: Cellulose from *Imperata cylindrica* L. can be used as a partial replacement of Avicel PH 101 at a ratio of 8.54 and 6.46 for Avicel PH 101 and cellulose respectively to produce acceptable tablet quality characteristics.

Keywords: alang-alang (Imperata cylindrica L), cellulose, paracetamol tablet, wet granulation, filler

Oral Presentation Room 2

Code: OL2-06

Anti Aging Activity of Ethanol-Methanol Extract of Mint Leaves (*Mentha piperita* L.) on Rats

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ABSTRACT

Background: The ethanol-methanol extract of mint leaves (EEMDM) was reported to have an anti aging effect on rat mesenchymal stem cells. **Objectives:** This study aims to determine the anti-aging activity of ethanol-methanol extract of mint leaves (*Mentha piperita* L.) on rats. **Material and Methods:** This research is an experimental study with a posttest-only control group design. Mint leaves were extracted using the maceration method with a mixture of 70% ethanol and methanol (1:1). Anti aging activity test using 12 Wistar rats induced by UVB 311 nm 20 minutes/day for 2 weeks. Rats were divided into 6 groups of 2 rats each: 1 group as a normal control (K1) and 5 test groups induced by 311 nm UVB light and then treated: K2 (EEMDM 20 mg/ml), K3 (EEMDM 40 mg/ml), K4 (EEMDM 60 mg/ml), K5 (EEMDM 80 mg/ml); and K6 (DMSO). Wrinkle, erythema, and exfoliation were scored on day 14 and statistically analyzed by Kruskall Wallis and Mann-Whithney test at 95% confidence level. **Results:** The average score of the smallest wrinkle parameter in the test group is at K4 of 0.75 ± 0.25; The average score of the smallest erythema parameter in the test group is in K2, K3, and K4 with the same amount of 0.75 ± 0.25; and The smallest average exfoliation parameter score in the test group is in K2 and K4 with the same amount of 1.75 ± 0.25, but all there is no significant difference ($p > 0.05$) with K6 on each parameter. **Conclusions:** The EEMDM concentrations of 20, 40, 60, and 80 mg/ml has no anti-aging activity significantly.

Keywords: anti aging, UVB rays, ethanol–methanol extract of mint leaves.

Oral Presentation Room 2

Code: OL2-07

Molecular Docking Combinations of Quercetin, Kaempferol and Luteolin Compounds in Onion *(Allium cepa)* Against Main Protease SARS-CoV-2 as Anticovid

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ABSTRACT

Background: Corona Virus Disease (Covid) is a highly contagious viral infection caused by the SARS-CoV-2 virus. Mpro plays an essential role in replicating this virus so that Mpro can be used as a target for anti-covid drug discovery. Onion *(Allium cepa)* is one of the plants that has the potential as an anticovid. The content of compounds in shallots that have potential as anticovidants are quercetin, kaempferol, and luteolin compounds. **Objectives:** This study aimed to determine the interaction of the combination of quercetin, kaempferol, and luteolin in onion *(Allium cepa)* against Mpro as a candidate model for anticovid by molecular docking study. **Materials and Methods:** This research method uses molecular docking with the tested ligands are quercetin, kaempferol, luteolin and a combination of these three compounds which are compared with the comparison ligands hesperitin, lopinavir and paxlovid on the Mpro receptor. The research stages include the validation of PDB codes (6LU7, 3E9S, 5R7Y) using YASARA with RMSD values <2 Å, preparation of test and comparison ligands with MarvinSktech, running molecular docking with PLANTS and visualization of docking results with LigPlot+ and PyMOL. **Results:** PDB validation results obtained RMSD values of 1.8873 (PDB 6LU7), 1.2923 (PDB 5R7Y), and 0.4473 (PDB 3E9S). The docking values for PDB code 6LU7 are native ligand (-131.45), combination (-84.7115), hesperetin (-72.9618), lopinavir (-124.446), and paxlovid (-99, 33). For PDB code 5R7Y, namely native ligand (-64.0898), a combination (-73.3839), hesperetin (-68.358), lopinavir (-108.022), and paxlovid (88.6999). For the PDB code 3E9S, the native ligand (-111,404), a combination (-81, 1577), hesperetin (-96.9566), lopinavir (-132.137), and paxlovid (-105.684). **Conclusion:** The combination of quercetin, kaempferol, and luteolin has the potential to be developed as an anticovid candidate model although it is less potent than the native ligands, lopinavir and paxlovid.

Keywords: molecular docking, Mpro, covid, 6LU7, 3E9S, 5R7Y.

Oral Presentation Room 2

Code: OL2-08

Application of Lakes System in Formulation O/W Hair Dye Cream of Butterfly Pea (*Clitoria ternatea* L.) Ethanol Extract with Tween-Span-Glycerin Combination

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ABSTRACT

Background: Butterfly pea *(Clitoria ternatea L)* contains purple anthocyanins, which have natural coloring potential but are unstable and readily oxidized owing to temperature and high light intensity, to enhance this enhancement with the lake system in a cream preparation. The combination of Tween-Span-Glycerin as surfactant and cosurfactant can determine the characteristics of cream preparations. **Objectives:** This study aims to determine the effect of variations in the combination of Tween-Span-Glycerin on the characteristics of the cream preparations M/A hair dye Lakes System for Butterfly Ethanol Extract *(Clitoria Ternatea). L.).* **Material and Methods:** Butterfly Pea ethanol extract was obtained by maceration method using 70% ethanol solvent, followed by drying using a rotary evaporator. The lakes system was made with a ratio of 10% telang flower ethanol extract, 1% alukol, 9% aerosol, followed by the preparation of a Tween-Span-Glycerin combination cream made in 3 successive formulas, namely F1 (5:10:20), F6 (7.5:10:12,5), F10 (7.5:5:5),. **Results:** The Comparison of variation of tween 80 with span 80, tween 80 with propylene glycol, propylene glycol with span 80 on adhesion test, test dispersion, viscosity test, and PH test no effect p> 0.05. **Conclusion:** The combination of variations of the tween-span-propyleneglycol emulsifier showed no effect on the physical characteristics of the cream preparation.

Keywords: butterfly pea, formulation, lakes system, tween-span-glycerin.

Oral Presentation Room 2

Code: OL2-09

Antioxidant Activity of Dewandaru Leaf (*Eugenia uniflora* L.) Ethanol Extract and Determination of Total Flavonoid and Phenolic Content

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ABSTRACT

Background: Free radicals in excessive amounts induce the various degenerative and chronic diseases. Therefore, natural antioxidants from outside the body are needed. Dewandaru (*Eugenia uniflora* L.) is a plant that has antioxidant activity. Compounds that have a role are phenolic and flavonoid. **Objectives** This study aimed to measure the antioxidant activity of Dewandaru (Eugenia uniflora L.) leaf the ethanol extract using the ABTS method (*2,2'-Azinobis [3-ethylbenzothiazoline-6-sulfonic acid]-diammonium salt*) and determine the content of total flavonoid and phenolic compounds. **Materials and Methods** The ethanol extract of Dewandaru leaves was obtained by maceration with 96% ethanol. The ethanol extract of Dewandaru leaves identified its active compounds through phytochemical screening and TLC. And then the ethanol extract of Dewandaru leaves was measured the antioxidant activity using the ABTS method to obtain ARP (*Anti Radical Power*) values. *Trolox* as a comparison of antioxidants and ABTS as a radical agent. Furthermore, the ethanol extract of Dewandaru leaves was determined for the total flavonoid and phenolic content with UV/Vis spectrophotometry at a maximum wavelength of 428.0 nm and 743.6 nm. Quercetin as the standard for flavonoids and gallic acid as the standard for total phenolics.
Results: The results showed that the ethanol extract of Dewandaru leaves contained saponins, tannins, phenolics, and flavonoids. The ARP (*anti radical power*) value of ethanol extract of Dewandaru leaves is 10970.61 mg ABTS/mg sample. Meanwhile, the total flavonoid and phenolic content contained in the ethanol extract of Dewandaru leaves was 35.60 mgQE/g and 226.48 mgGAE/g. **Conclusion:** The ethanol extract of Dewandaru leaves has a high ARP value indicates that the more effective the antioxidant activity.

Keywords: ABTS, antioxidant activity, Dewandaru, *Eugenia uniflora* L., phenolic, flavonoid.

Oral Presentation Room 2

Code: OL2-10

Development of Pentagamavunon-0 Synthesis: PGV-0 Isolation from the Rinse Solvent and Purification Improvement

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ABSTRACT

Background: Pentagamavunon-0 (PGV-0) is a curcumin analogue with various pharmacological actions. However, since there is no information on the purity of PGV-0 applied, the evidence for its efficacy is still doubtful. Furthermore, the previous synthesis method frequently yields PGV-0 with diverse physicochemical properties. The purity of a synthesized compound can be improved using the appropriate rinsing and recrystallization method. **Objectives:** This work aims to develop a synthesis method that employs rinsing and recrystallization to obtain high purity PGV-0 and isolate PGV-0, which crystallizes in rinse solvent. **Material and Methods:** PGV-0 was synthesized through a two-hour reaction of vanillin and cyclopentanone, using hydrochloric acid as an acid catalyst. PGV-0 was extracted using an acetic acid-aquadest (1:1) mixture, washed three times with ethanol and boiling distilled water, then recrystallized employing hot ethanol and cold-distilled water. PGV-0's chemical structure was confirmed by analyzing ^{1}H-NMR spectra and comparing them with the ^{1}H-NMR spectra data from previous research findings. The purity of the synthesized PGV-0 was determined employing a thin-layer chromatography (TLC) profile, melting point and melting point range, and high-performance liquid chromatography (HPLC). **Results:** The synthesis method provided 12.61 g of PGV-0 with a purity of 96.90 %, a melting point of 204.0-205.5 °C, and a melting point range of 1.3±0.27 °C through modifying the rinsing and recrystallization techniques. Synthesized PGV-0 is a bright yellow solid with a smooth appearance and not adherent on filter paper or glass containers. Simultaneously, the isolation yield of PGV-0 from rinse solvent was 3.161 g with 84.87 % purity. PGV-0 isolated from the rinse solvent had a slightly different texture with orange crystalline color. **Conclusions:** This study reports for the first time regarding the PGV-0 isolation technique from rinse solvent. Additionally, the findings of this work complement the earlier method for synthesizing high purity PGV-0.

Keywords: pentagamavunon-0, purification improvement, synthesis, recrystallization, rinse solvent

Oral Presentation Room 3 (Zoom meeting)

Code: OD01

In Silico Investigation of Potential Poly(Adp-Ribose) Polymerase (Parp) Inhibitors of Steroidal Saponins From *Vernonia amygdalina* Delile. Leaves

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ABSTRACT

Background: Alteration in life style and diet are the main factor affecting the number of cancer patients. Cancer take place when cells start to grow with uncontrollably. Cells could invade nearby tissues and spread pass through the body. *Vernonia amygdalina* Delile. (Asteraceae) is used in traditional medicine to treat diabetes mellitus and some research provides its activity to treat breast cancer. **Objectives:** The aim of this study is to analyze the activity of steroidal saponins from *Vernonia amygdalina* Delile. Leaves in inhibition Poly(ADP-Ribose) Polymerases (PARP) with in silico method. **Material and Methods:** In silico docking was used PLANTS program. The model of three dimension enzyme structures used in this research were PARP, binding pocket with the Protein Data Bank (PDB) code 1UK0. Two and three dimension of compounds (20 compounds) were generated using Marvin Sketch program. **Results:** Vernocuminosides G (most active compound), talazoparib (drug standard) and native ligand were inhibited PARP with docking score -124.165; -114.324, and -123.072 respectively. **Conclusion:** *Vernonia amygdalina* Delile. leaves has potential activity in treat breast cancer.

Keywords: In Silico, *Vernonia amygdalina* Delile, steroidal saponin, inhibitor, PARP.

Oral Presentation Room 3 (Zoom meeting)

Code: OD02

Evaluation of Drug Use for Acute Respiratory Infections in Pediatrics Outpatients Gunung Sawo Mother and Child Hospital

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ABSTRACT

Background: Acute Respiratory Infection (ARI) are defined as those infections of the respiratory system, caused by both viruses and bacteria. It may interfere with normal breathing. ARI is a public health problem that needs attention, because it is a disease that can cause death in infants in various developing countries, including Indonesia. ARI accounts for significant morbidity and mortality, however appropriate treatment can reduce the events. **Objectives**: This study aimed to evaluate the appropriateness of drug use in ARI patients. **Material and Methods**: a descriptive observational study, using retrospective drug data, was conducted in Gunung Sawo Mother and Child Hospital, Semarang, Indonesia. The Sample is taken using purposive sampling. The Inclusion criteria: children under 5 years old, outpatients with ARI diagnosed come to the hospital between October - December 2019, and the exclusion criteria are Patients with concomitant other infectious diseases. **Results**: There are 61 children who met the inclusion criteria, only diagnosed with Acute Respiratory infection without other co-morbidities. Men are more than women (63,93% and 36,07%), with ages between 4-12 months and bronchitis is the most, with other ages and diagnosed (pneumonia, pharyngitis, sinusitis). The antibiotic most used is Cefixime (58%), the others are amoxicillin (30%), erythromycin (9%), and amoxicillin-clavulanate (3%), respectively. The supportive drugs were corticosteroids (29%, the most), the others are Corticosteroids 29%, Mucolytics 18%, Decongestants 17%, Bronchodilators 14%, Antihistamines 12%, and Analgesics-Antipyretics 10%. The result of this study showed that the appropriateness of drug selection, indication, and doses reached 100%. **Conclusion**s: the drug used for children under 5 years, out-patients with ARI in Gunung Sawo Mother and Child Hospital Semarang is all appropriate according to the literature WHO standard *Model formulary for children*.

Keywords: Acute Respiratory Infection, drug use evaluation, outpatients, pediatric

Oral Presentation Room 3 (Zoom meeting)

Code: OD03

Quantification of Flavonoids and Phenolics from Ethanol Extract of Mango (*Mangifera indica* L.) Peel and Seed of Arummanis and Manalagi Varieties

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ABSTRACT

Background: The mango peel and seed (*Mangifera indica* L.) contains flavonoid and polyphenols compounds which are thought to have pharmacological activities such as antioxidants. Mango peel and seed with different varieties can produced different levels of flavonoids and phenolics. **Objectives:** This study aimed to determine the total flavonoids and phenolics content of the ethanol extract of mango peel and seed of arummanis and manalagi varieties using UV-Vis spectrophotometry. **Material and Methods:** Extraction of mango peel and seed of two varieties were obtained by maceration using 70% ethanol solvent. The determination of total flavonoids content is conducted based on $AlCl_3$ method with total flavonoids expressed in QE (Quercetin equivalent) at the λ = 434,8 nm, meanwhile total phenolics content is conducted based on Folin-Ciocalteu method with total phenolics expressed in GAE (Gallic acid equivalent) at the λ = 740 nm and TAE (Tannic acid equivalent) at the λ = 765 nm . The differences in total flavonoids and phenolics content of the all extract of two varieties were analyzed by independent t-test with 95% confidence level. **Result:** The results showed that the average total flavonoids content of ethanol extract of mango peel of arummanis and manalagi varieties is 4,4071 and 7.6601 mgQE/gram, meanwhile extract of mango seed of arummanis and manalagi varieties is 11.5687 mgQE/gram and 9.1103 mgQE/gram, respectively. The average total phenolic content content of ethanol extract of mango peel of arummanis and manalagi varieties is 53.4182 and 102.4281 mgGAE/gram, meanwhile extract of mango seed of arummanis and manalagi varieties is 109.6215 and 58,3834 mg TAE/gram. , respectively. **Conclusions:** The highest of total flavonoids and phenolics content of mango peel is manalagi variety, meanwhile mango seed is arummanis variety. The total flavonoids and phenolics content of mango peel and seed significantly of two varieties.

Keyword: flavonoids, mango peel, mango seed, phenolics, varieties

Oral Presentation Room 3 (Zoom meeting)

Code: OD04

Antioxidant Activity and Determination of Total Flavonoids and Total Phenol of *Amorphophallus muelleri* Blume Leaves, Stems, Tuber Peels and Tubers Extracts

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ABSTRACT

Background: Antioxidants have the activity of neutralizing free radical compounds which are one of the causes of cell and tissue damage. One of the antioxidants in plants are flavonoids and saponins. *Amorphophallus muelleri* Blume are plants that contain flavonoids, phenols, tannins, alkaloids and steroids/triterpenoids. **Objectives**: This study aims to determine the antioxidant activity, total flavonoid and total phenol of *Amorphophallus muelleri* Blume leaves, stems, tuber peels and tubers extracts. **Material and Methods**: This study used experimental methods through laboratory tests consisting of sample collection, sample processing, phytochemical screening, manufacture of ethanol extract of *Amorphophallus muelleri* Blume leaves, stems, tuber peels and tubers. Testing of antioxidant activity of leaves, stems and tubers of *Amorphophallus muelleri* Blume with DPPH free radical scavenging activity method measured by UV-Visible spectrophotometry, determination of total content ethanol extract of phenol was carried out by UV-Visible spectrophotometry using Folin-Ciocalteu reagent, and determination of total flavonoid content was carried out by UV-Visible spectrophotometry with the addition of $AlCl_3$, CH_3COONa reagent, and distilled water. **Results**: The results obtained through phytochemical screening, *Amorphophallus muelleri* Blume leaves, stems, tuber peels and tubers extracts contains flavonoids, tannins, and steroids. The results of the antioxidant activity using the DPPH method showed that *Amorphophallus muelleri* Blume leaves, stems, tuber peels and tubers extract had an IC50 value of 318,295 µg/mL; 545,1283 µg/mL; 297,14 µg/mL and 260.86 µg/mL. Determination of total flavonoid levels from the *Amorphophallus muelleri* Blume leaves, stems, tuber peels and tubers extracts showed a value of 100,675 mg QE/g; 22,8556 mg QE/g; 34,6296 mg QE/g and 39.2560 mg QE /g extract and determination of total phenol content of *Amorphophallus muelleri* Blume leaves, stems, tuber peels and tubers extracts showed a value of 11,723 mg GAE/g; 10.9949 mg GAE/g; 9,2239 mg GAE/g and 19.9811 mg GAE/g extract. **Conclusion**s: The conclusion obtained from this study is that the results of the antioxidant activity of *Amorphophallus muelleri* Blume leaves, stems, tuber peels and tubers extracts in reducing DPPH free radicals obtained an IC_{50} value which is categorized as very weak.

Keywords: *Amorphophallus muelleri* Blume, DPPH, total flavonoids, total phenols

Oral Presentation Room 3 (Zoom meeting)

Code: OD05

Milkfish (*Chanos chanos*) Preservation Application with Shellfish Waste

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ABSTRACT

Background: Chanos chanos is a food product that is very easily damaged. Stingray decay occurs immediately after stingrays are caught or die. In tropical temperature conditions, stingrays rot within 12-20 hours depending on the species, tool or method of catching. Stingray processing to be more durable needs to be done, so that stingrays can still be consumed in good condition. **Objectives**: Stingray preservation basically aims to prevent spoilage bacteria from entering the stingray. Stingrays will have a longer economic value by preserving than if no preservation was carried out. **Materials and Methods:** This research, chitosan used as an anti-microbial was extracted from shellfish waste. Chitosan obtained was then used as an anti-microbial milkfish. Chitosan was dissolved in acetic acid with variations in the concentration of chitosan 1%; 2,5%, 5% and 7,5%. The time to store Chanos chanos: 0 hours, 5 hours, 10 hours, 15 hours and 20 hours. The results of statistical analysis using the ANOVA test. **Results**: Chitosan from shellfish waste can be used as a natural preservative of Chanos chanos. **Conclusion:** The optimal concentration of chitosan used as a preservative stingray is 5% can extend the shelf life of fish for 20 hours.

Keywords: Chanos chanos, preservative, shellfish waste.

Oral Presentation Room 3 (Zoom meeting)

Code: OD06

In Silico Analysis of Chemical Compounds from *Litsea cubeba* Lour. as Human Epidermal Growth Factor Receptor 2 (Her-2) Inhibitor

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ABSTRACT

Background: Breast cancer has been known as the leading of cancer in women after cervical cancer. Alteration in life style and diet are the main factor affecting the number of breast cancer patients. HER2 is a transmembrane protein that is overexpressed in most human solid tumors such as breast, ovarian, endometrial, colon, and non-small cell lung cancer, prostate, and cervical cancer. Around 20% cases of breast cancer are related with overexpression of HER2 protein and correlated with a worse survival of patients. Attarasa (*Litsea cubeba* Lour.) is potential as anticancer especially for breast cancer. **Objectives:** The aim of this study is to analyze the activity of chemical compounds from *Litsea cubeba* Lour. in inhibition HER2 expression with in silico method. **Material and Methods:** In silico docking was used PLANTS program. The model of three dimension enzyme structures used in this research were HER-2, binding pocket with the Protein Data Bank (PDB) code 3RCD. Two and three dimension of compounds (36 compounds) were generated using Marvin Sketch program. **Results:** 9,9'-O-di-(E)-feruloyl-5,5'-(+)-dimethoxy secoisolariciresinol (most active compound), neratinib (drug standard) and native ligand (TAK-285) inhibited HER-2 with docking score -125.789; -114.088, and -101.128 respectively. **Conclusion:** *Litsea cubeba* Lour. has potential prospect in treat breast cancer with HER2 overexpression.

Keywords: In Silico, *Litsea cubeba* Lour, compounds, inhibitor, HER-2.

Oral Presentation Room 3 (Zoom meeting)

Code: OD07

Antioxidant Activity of Ethanol Extract of *Saurauia vulcani* Korth. Leaves

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ABSTRACT

Background: Oxidation is an important process in living organisms. Free radicals arising from metabolism or enviromental sources interact continously with biological system. The uncontrolled production of oxygen free radicals and the unbalanced mechanism of antioxidant protection results in the onset of many diseases, such as cancer, diabetes, Alzheimer's, heart diseases and aging. *Saurauia vulcani* Korth. is an endemic plant that is widely found in Sumatera Utara that has an activity in reducing blood glucose levels. **Objectives:** The aim of this study was to determine antioxidant activity, determination of total phenolic and total flavonoid content of *Saurauia vulcani* Korth. Leaves. **Material and Methods:** Extract was prepared using ethanol 96% with maceration method. Antioxidant activity were determined with 1,1-diphenyl-2-picrylhydrazyl (DPPH) method. Total flavonoid and total phenolic content were determination with colorimetric methods. **Results:** Antioxidant activity from DPPH assay measured as IC_{50} was 122.20 ± 0.20 µg/mL. Ethanol extract (EE) was found to contain high levels of phenolic (102.36 ± 0.52 mg GAE/g), total flavonoid (13.65 ± 0.43 mg QE/g). **Conclusion:** The results reveal that EE of *Saurauia vulcani* Korth. Leaves has antioxidant potential.

Keywords: Antioxidant, *Saurauia vulcani* Korth, ethanol extract

Oral Presentation Room 3 (Zoom meeting)

Code: OD08

Formulation of Leaf Ethanol Extract Nanocream Australian Guava (*Psidium guajava* L.) as A Skin Moisturizer

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ABSTRACT

Background: Nanocream is an O/W or W/O colloidal nanoemulsion in the form of semisolid, consisting of an oil phase dispersed into an aqueous phase or vice versa make a droplet has a diameter between 20-500 nm. Cosmetics are materials or preparations intended to used on external parts of the human body (epidermis, hair, nails, and mucous membranes, mouth) mainly for cleaning, perfuming, transforming appearance, and/or improve body odor or protect the body, or keep the body in good condition. **Objectives**: to prove the concentration of 2% is the best concentration of Australian guava leaf extract can provide a moisturizing effect. **Material and Methods**: The materials used are Tween 80, propylene glycol, cetyl alcohol, methyl parabens, propyl parabens, and distilled water, buffer pH acid 4.01 (Hanna Instruments),buffer pH neutral 7.01, Australian guava leaf extract (Psidium guajava L.), ethanol 80%, palmitic acid.this study uses an experimental method, the sample is extracted by maceration for 5 days using 80% ethanol as solvent.The viscous extract obtained as the active substance with a concentration of 2%.The preparation test includes omogeneity test, organoleptic test, pH test, power testspread, irritation test, emulsion type test, and total plate count test on the preparation.**Results**: The results showed that Australian guava leaf extract
can be made into nanocream preparations and meet the physical evaluation of the preparation.The results of the organoleptic test showed that the preparations made were quite stable,homogeneous, the pH ranges from 6-7, and the preparation does not cause irritation, and provides a moisturizing effect, as evidenced by a skin analyzer with an increase in percentage. Based on the preliminary tests conducted by researchers in the manufacture of Australian leaf extract nanocream, the optimum surfactant concentration (tween 80) and cosurfactant (propylene glycol) to produce nanocream soft with a size of 0.40961 (μm). **Conclusion**s: Ethanol extract of Australian guava leaf (*Psidium guajava* L.)formulated into nanocream preparations, namely by prioritizing the use of the best concentration of Australian guava leaf extract, namely 2%, concentration of tween 80 as surfactant and propylene glycol as cosurfactant.

Keywords: Australian guava, ethanol extract, nanocream, skin moisturizer

Oral Presentation Room 3 (Zoom meeting)

Code: OD09

The Impact of Ngoko Javanese Pictogram-based Pocketbook using the CBIA Method as an Educational Medium to the Knowledge, Perception, and Adherence of Tuberculosis Patients

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ABSTRACT

Background: Tuberculosis treatment uses antibiotics with a minimum duration of therapy for 6 months depending on the disease suffered by the patient. Consequently, the patient's adherence to medication is low which results in an increase in risks that are bad for his health, such as therapy failure, disease recurrence, to the effect of drug resistance. Patient's knowledge and perception were related to patient adherence. The purpose of this study was to determine the level of knowledge, perception, and adherence of tuberculosis patients in the control group and the intervention group at RSUD Bangil. **Method:** Data validity testing was carried out in knowledge and perception questions. The research design used quasi experimental. There were 120 respondents divided into 60 respondents in the control group and 60 respondents in the intervention group. Each group was observed for one month. The level of adherence was measured by pill count. **Results:** The level of patient knowledge showed significant differences in the control group and intervention group ($p < 0.05$) for each domain. After the patient was observed for one month, the intervention group's knowledge score remained high. Patients' perceptions are grouped into 7 domains. After providing education, the level of patient perception showed significant differences in the timeline domain, personal control, illness coherence, and emotional representations ($p<0.05$). The level of patient adherence showed significant differences in the two groups ($p<0.05$). **Conclusion:** Provision of education using the CBIA method with a pocketbook media based on Ngoko Javanese pictogram shows an increase in knowledge, changes in perception or behaviour, so that there was an increase in tuberculosis patient adherence. However, there was no relationship between the level of adherence with demographic data for tuberculosis patients ($p>0.05$).

Keywords: tuberculosis, knowledge, perception, adherence, pictogram

Oral Presentation Room 3 (Zoom meeting)

Code: OD10

Investigation In-Vitro of Anthelmintic Activity of Pegagan (*Centella asiatica* (L). Urb) in Adult Earthworms (*Pheretima posthuma*)

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ABSTRACT

Background: *Centella asiatica* (L.) Urb, is an important plant of North Sumatera (Indonesia) known as Pegagan by the local community and is being used by various communities in Tarutung. An exhaustive study was carried out with a view to substantiate the therapeutic potential of the plant in terms of its anthelmintic activity against *Pheretima posthuma* using Albendazole as a reference standard. **Objectives**: This study aimed to investigation in-vitro of anthelmintic activity of pegagan in adult earthworms (*Pheretima posthuma*). **Material and Methods**: This study using 0.9% w/v of normal saline solution, Ethanol 0.5%, 20mg/ml of standard drug Albendazole, and Ethanolic extracts of *Centella asiatica* (L.) Urb were freshly prepared. Twenty Four Adult Earthworms (*Pheretima posthuma*) were collected, divided into seven groups containing four worms in each group. Time for paralysis and time for death were recorded for each group. Extracts with concentrations of 5mg/ml, 10mg/ml, 20mg/ml, 30mg/ml produced dose-dependent paralysis. **Results**: Ethanolic extracts of *Centella asiatica* (L.) Urb with concentrations of 30mg/ml gave shortest paralysis and death time at 100mg/ml as compared to that of standard and other concentrations. Results are expressed as Mean ± SEM ($P<0.05$) of 4 worms in each group. **Conclusion**s *Centella asiatica* (L.) Urb used by the people of Tarutung traditionally to treat intestinal worm infections, possesses significant anthelmintic activity

Keywords: Pegagan, *Centella asiatica* (L.) Urb, Anthelmintic, *Pheretima posthuma*, Worm

Poster Presentation

Code: P01

Antioxidant activity of Andong Merah (*Cordyline fruticosa* L.) leaves by ABTS method

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ABSTRACT

Background: Andong merah (*Cordyline fruticosa* L.) leaves contain phenolics, flavonoids, tannins, saponins, steroids, and polysaccharides. Phenolic, flavonoids and tannins have potential as antioxidants. **Objectives:** The purpose of this study was to determine the antioxidant activity using the ABTS method from andong merah leaves and to determine the levels of phenolics, flavonoids and tannins. **Materials and Methods:** Andong merah powder was extracted using the maceration method. The solvents used were ethanol 70% and 95%. Determination of antioxidant activity using the ABTS method with a comparison of trolox measured at a wavelength of 745 nm. Determination of phenolic content using folin-ciocalteu reagent with gallic acid as a comparison which was measured at a wavelength of 741.50 nm. Determination of flavonoid levels using $AlCl_3$ reagent with comparison of quercetin measured at a wavelength of 428 nm. Determination of tannin levels using folin denis reagent and sodium carbonate with tannic acid as a comparison which was measured at a wavelength of 745.80 nm. **Results:** The results showed that the 70% ethanol extract of andong merah leaves had antioxidant activity with an IC_{50} value of 80.11 ppm while the 95% ethanol extract of andong merah leaves was 88.99 ppm. Trolox as a comparison obtained IC_{50} value of 18.80 ppm. The total phenolic, flavonoid and tannin levels in the 70% ethanol extract of andong merah leaves were 166 mg GAE/g, 5.96 mg QE/g and 32.47 mg TAE/g while the 95% ethanol extract was 131.17 mgGAE/g, 4.26 mgQE/ g, and 25.03 mgTAE/g. **Conclusion:** The activity of the 70% ethanol extract of andong merah leaves was more potent than 95% ethanol extract , although not as potent as trolox. The phenolic, flavonoid, and tannin levels in the 70% ethanol extract of andong merah leaves were greater than the 95% ethanol extract of andong merah leaves.

Keywords: ABTS, Antioxidant, *Cordyline fruticosa* L, Flavonoid, Phenolic, Tanin

Poster Presentation

Code: P02

Liquid Chromatography for Simultaneous Determination of Glycolic Acid and Lactic Acid in Skincare Preparations

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ABSTRACT

Background: Glycolic acid and lactic acid function as exfoliants, widely used in skincare toner preparations. Excessive use of doses can cause skin irritation. The low concentration in dosage forms requires sensitive methods for quality control. **Objectives:** This study aims to validate the HPLC method for simultaneous quantitative analysis of glycolic acid and lactic acid and to apply the method to skincare toner preparations. **Material and Methods:** The study used HPLC (Jasco) at a wavelength of 220 nm. The stationary phase used was C18 (Lichospher) and the mobile phase was a mixture of water: methanol (30:70, v/v) with a flow rate of 1.0 mL/minute. Validation tests performed include linearity, selectivity, sensitivity, precision, and accuracy parameters. The analytical method was applied to 3 toners from 3 different manufacturers. **Results:** The five validation parameters met the requirements: linearity correlation value for glycolic acid r = 0.9993 and for lactic acid r = 0.9993, the quantitation limit for glycolic acid was 0.143 g/mL and lactic acid was 0.144 g /mL. The selectivity was good, the precision test yielded %RSD< 2% and the accuracy test for glycolic acid and lactic acid were 99.22-100.74% and 99.40-100.23%, respectively. Glycolic acid concentration in toner brand A is 0.0015%, brand B is 0.00024%, and brand C is 0.0059%. Lactic acid levels in brand A toner 0.0038%, brand B 0.00067%, brand C 0.0059%. **Conclusions:** The validated HPLC method can be appled for simultaneous quantitative analysis of glycolic acid and lactic acid in skincare toner preparations. All concentrations were below the permitted concentrations of the Indonesian Food and Drug Authority.

Keywords: glycolic acid, lactic acid, validation of analytical methods, toner

Poster Presentation

Code: P03

Formulation and Determination of SPF Value from Tea Tree Oil Sunscreen Cream

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ABSTRACT

Background: Tea tree oil (Melaleuca alternifolia) contains compound that can be used as a sunscreen. **Objectives:** The purpose of this study was to determine the physical characteristics and activity of sunscreen from a mixture of tea tree oil cream in vitro way. **Materials and Methods:** Tea tree oil creams were carried out with vvariations of tea tree oil content F1= 5 g, F2= 7 g, and F3= 9 g. Tea tree oil creas were tested for physical characteristics including organoleptic, homogeneity, pH, viscosity, spreadability, and adhesiveness. The activity of sunscreen from cream tea tree oil was carried out in vitro using a spectrophotometer at a wavelength of 290-320 nm. Data on physical characteristics were analyzed descriptively and using different parametric statistical test and the activity of the sunscreen was analyzed by one way Anova. **Results:** The test results of physical characteristics test showed that the tea tree oil cream from was a half a solidd, white, has a distinctive smell of tea tree oil and was homogeneous. There is a difference in spreadability and adhesiveness of the dosage from the differences in the concentration of tea tree oil, spreadability F1= 5,77±0,08 cm, F2= 5,84±0,09 cm, F3= 6,83±0,10 and adhesiveness F1=01.31±0,03, F2=00.95±0,04, F3=00.89±0,01, but did not effect pH and viscosity preparations. The total SPF values of F1, F2, F3 tea tree suncreen consecutively are 7.7±0,80 (extra), 9,97±0,47 (maximum), 10.0±1,59 (maximum). **Conclusion:** Tea tree oil cream has sunscreen activity and good physical characteristics with the highest SPF value at 9 gram of oil compound.

Keywords: cream, tea tree oil, physical characteristics, sunscreen activity

Poster Presentation

Code: P04

Formulation and Characteristics of Almond Oil (*Oleum amygdalarum*) Cream and Lotion as Sunscreen

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ABSTRACT

Background: Almond oil (Oleum amygdalarum) is an oil that contains vitamin E, stearic acid and oleic acid which function as antioxidants and can be used as sunscreen. **Objective**: This study aims to determine the effect of variations in the concentration of almond oil in lotion and cream preparations on the characteristics, physical chemistry and activity of sunscreens. **Materials and Methods**: Lotions and creams were made in 3 formulas based on variations in oil concentration FI (5.0%), FII (7.5%), FII (10.0%). The lotions and creams obtained have physical characteristics including organoleptic, homogeneity which were analyzed descriptively, while adhesion, dispersion, pH, viscosity and SPF values were analyzed using linear regression. **Result**: Almond oil lotions and creams with various concentrations are white, odorless, homogeneous and suitable for skin pH. Concentration of Almond Oil in lotions and creams increases pH, spreadability but decreases lift and stickiness. **Conclusion**: The results showed that the SPF values of the three lotion formulas were 8,681 (maximum); 14,366 (maximum) and 19,596 (ultra), while the cream preparations have an SPF value of 8,930 (maximum); 13,464 (maximum) and 19,035 (ultra).

Keywords: lotion, cream, almond oil, sunscreen, SPF

Poster Presentation

Code: P05

Ethyl Acetate Fraction of Etanol Extract Dayak Onion Bulbs (*Eleutherine palmifolia* (L), Merr) Induced Intrinsic Apoptotic Pathway in Mda-Mb-231 Stem Cells by Decreasing Bcl-2 Expression

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ABSTRACT

Background: Dayak onion bulbs (*Eleutherine palmifolia* (L), Merr) were shown to have cytotoxic activity. Isoliquiritigenin is a flavonoid compound which has anticancer activity. MDA-MB-231 stem cells are cancer stem cells that play an important role in the formation, development, and resistance of cancer treatment. **Objectives**: This study aimed to determine the cytotoxic activity and protein expression of Bcl-2 in the ethyl acetate fraction of the ethanol extract of Dayak onion bulbs (FEUBD) in MDA-MB-231 stem cells. **Material and Methods**: Dayak onion powder was extracted using percolation method with 96% ethanol solvent, followed by fractionation with ethyl acetate. The content of flavonoid compounds in FEUBD was identified using thin layer chromatography method. Cytotoxicity test on FEUBD was performed using MTT Assay method with a concentration of 25; 50; 500; 750; and 1000 µg/mL by measuring the absorbance using an ELISA reader, then the results were analyzed using linear regression method to obtain the IC_{50} value. The next step was observing the expression of Bcl-2 protein using immunocytochemical method, with concentrations of 1/4 IC_{50}, 1/2 IC_{50}, 1 IC_{50}, and 2 IC_{50} then analyzed using Image J Software and tested using the Kruskal Wallis test. **Result**: Identification of compound content using thin layer chromatography showed that FEUBD contains flavonoid compounds, indicated by the appearance of yellow colored spots seen in visible light. The results of the FEUBD cytotoxic activity test against stem cells MDA-MB-231 obtained an IC_{50} value of 416 g/mL. The test results mean the visual field area of Bcl-2 protein expression in the control; 104 µg/mL; 208 µg/mL; 416 µg/mL; and 832 µg/mL of 10.405%; 9.332%; 8.683%; 5.145%; 0.641%, respectively. **Conclusions**: FEUBD at concentrations of 416 µg/mL and 832 µg/mL resulted in a significantly lower Bcl-2 protein expression compared to control cells.

Keywords : Bcl-2, Cancer Stem Cells, *Eleutherine palmifolia* (L), Merr.;; MDA-MB-231,

Poster Presentation

Code: P06

Total Flavonoid Content and Antibacterial Activity of Purified Extract of Mango Harum Manis (*Mangifera indica* L.) Leaves

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ABSTRACT

Background: Flavonoid content found on mango harum manis leaves *Mangifera indica* L and showed antibacterial activity. Purification can obtain more specific compounds and higher purity. **Objectives:** This study aims to determine total flavonoid content and the antibacterial activity of purified extract of mango harum manis leaves against *Staphylococcus epidermidis* dan *Bacillus subtilis*. **Material and Methods**: Mango leaves powder was extracted by maceration with ethanol 96% solvent and continued purification with hot water and ethyl acetate. The standard comparison for total flavonoid content is quercetin with a concentration series of 2, 4, 6, 8, and 10 ppm. Total flavonoid content calculated by the equation y = bx + a (x= total flavonoid content; y= absorbance). The antibacterial activity test was used Kirby Bauer method against *Staphylococcus epidermidis* and *Bacillus subtilis* bacteria cultures with a concentration series of 1%, 5%, 10%, 15%, and 20%. Chloramphenicol 30 µg / disk was used as positive control and DMSO as the negative control. **Results:** Purified extract of mango harum manis leaves showed total flavonoid content as 12,719 mgQE/g extract and diameter of inhibition zone as 8,1-14,6 mm against *Staphylococcus epidermidis* and 8,9-15,9 mm against *Bacillus subtilis*. **Conclusions:** Purified extract of mango harum manis leaves has total flavonoid content and antibacterial activity against *Staphylococcus epidermidis* and *Bacillus subtilis* as Gram positive bacteria.

Keywords: mango harum manis (*Mangifera indica* L.) leaves, purified extract, total flavonoid, *Staphylococcus epidermidis, Bacillus subtilis*.

Poster Presentation

Code: P07

Antihyperlipidemic Effects of Microencapsulated-fraction Obtained from *Clinacanthus nutans* (Burm.f.) Lindau) Leaves

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ABSTRACT

Background: Cardiovascular disease (CVD) is the primary cause of death and remains as the top ten disease burden in developing countries including Indonesia. One of the utmost risks of CVD addressed towards dyslipidemia defining as a lipid metabolism disorder characterized by an increase or decrease of lipid fraction in the blood plasma. **Objectives**: This study was designed to determine the effect of microencapsulation of the aqueous fraction of *Clinacanthus nutans*. L leaves, locally known as *Dandang Gendis*, as an antihyperlipidemic agent and to determine its *in vivo* effective dose in rats' model induced by fructose and high-fat nutrients. **Material and Methods**: Microencapsulation of the water fraction of *C. nutans. L* leaves was sourced from 8 grams of *C. nutans. L* leaves fraction. Maltodextrin and Arab-gum were weighed according to certain comparison (0.804:0.194), mixed until dissolved and homogeneous. Then water fraction of *C. nutans. L* leaves was added and prepared with aquadest to 200 mL. The mixture was freezed for 24 hours followed by freeze drying (lowered to -100°C) for 72 hours. Male Wistar rats were served as experimental study aged 2 -3 months, weight 150-250 grams. There were 5 levels of doses used in this study, 15.89 mg/kg; 31.78 mg/kg; 47.67 mg/kg; 63.56 mg/kg; 79.45 mg/kg. Rats induced fructose at a dose of 1.8 g/kg rat, high-fat feed (pig oil: duck yolk) of 3:1 for 55 days, and simvastatin as the positive control with dose of 1.26 mg/kg. Blood samples were taken on day-1 (before induction), day-56 (after induction ended) and day-69 to measure the levels of cholesterol, triglycerides, HDL and LDL. **Results**: Statistically, the data obtained is normal and homogeneous as evidenced by the value of p> 0.05. The reduction percentage in total cholesterol levels was tested using *One way Anava* to find out the difference results obtained 0.000<0.05 which means that there are differences between groups. The Post Hoc test between the positive group and the dose-rated group, the results (p>0.05) showed that the simvastatin positive control was not significantly different from the dose-rated group. **Conclusions**: The dose of 15.89 mg/kg body weight of microencapsulated water fraction of *dandang gendis* leaves is an effective dose that can lower total cholesterol, triglycerides, LDL, and raise HDL in rats that are induced with high-fat and fructose feeds.

Keywords: antihyperlipidemic, *Clinacanthus nutans*. L leaves, microencapsulation

Poster Presentation

Code: P08

Antioxidant Profile of Ethanol Extract Sumbawa Honey (*Apis dorsata*) and Its Fractions Using the ABTS Method

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ABSTRACT

Background: Honey is a beekeeping product that contains bioactive chemicals that have a variety of therapeutic qualities. As a tropical country, Indonesia has a wide range of honey varieties. Sumbawa honey is popular Indonesian forest honey whose antioxidant activity has yet to be investigated. **Objectives**: This study was to see how the antioxidant properties of the ethanol extract and the fraction of Sumbawa honey (*Apis dorsata*) related to the total flavonoid concentration. **Material and Methods**: Sumbawa honey was dried using freeze-drying at a temperature of -100°C for 48 hours and then extracted using the maceration method with 70% ethanol as solvent. The macerate was concentrated using a rotary evaporator to obtain a thick extract and then liquid-liquid partitioned with n-hexane, ethyl acetate, and water as solvents. Determination of total flavonoid levels using a comparison compound quercetin with $AlCl_3$ reagent. While the antioxidant activity test uses the ABTS method with comparison Trolox using a UV-Vis spectrophotometer. **Results**: The results showed that the fractions of water, n-hexane, ethyl acetate, and ethanol extract of Sumbawa honey had total flavonoids with levels of 0.450±0.013; 0.292±0.009; 0,246±0.005 and 0,585±0.008 mg QE/gram, respectively. Antioxidant capacity as measured by the ABTS assay was higher and more closely related to oxygen radical absorption capacity (ORAC). Trolox as a comparison has an IC_{50} value of 18.463±0.133 µg/ml and is classified as a very strong antioxidant. The fraction of water, n-hexane, ethyl acetate, and ethanol extract of Sumbawa honey has antioxidant activity with IC_{50} values of 101.648±0.514; 107.029±0.441; 70.206±0.586, and 96.053±0.569 µg/ml, respectively. **Conclusions**: The ethyl acetate fraction has the best antioxidant activity compared to ethanol extract and other fractions and is included in the strong category but has not been able to compete with Trolox.

Keywords: Antioxidant, ethanol extract, flavonoid, Sumbawa honey

Poster Presentation
Code: P09

The Development of Grape Seeds Waste Potential as a Colon Cancer Cochemotherapeutical Agent through Apoptosis Induction and Cell Cycle Modulation

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ABSTRACT

Background: 5-Fluorouracil is a commonly used chemotherapeutic agent in patients with colon cancer. The risk of side effect using of 5-fluorouracil such as cardiotoxicity and immunosupression which can lead to death. One of the approach to overcome overloaded use of 5-fluorouracil is the combined use with a chemopreventive agent (co-chemotherapy),including the seeds extract of grape (*Vitis vinifera* L.). **Objectives**: This research aims to reviewing the effect of the methanol extract of seeds of grape on the cytotoxic activity of 5-fluorouracil in modulating cell cycle and apoptosis of colon cancer cells WiDr. **Materials and Methods:** Determination of the cytotoxic activity of methanol extract of seeds of grape and 5-fluorouracil as well as a combination of both conducted by MTT assay. Modulation surveillance of cell cycle and apoptosis induction is done by using flowcytometry and analyzed by FACS Calibur program. **Results:** Cytotoxicity assay single treatment of the methanol extract of seeds of grape produce use values of IC_{50} 403,957 µg/ml, whereas IC_{50} values 5-fluorouracil is 848 µM. Observations modulation of cell cycle and apoptosis induction combination of methanol extract seedsof grape and 5-fluorouracil at concentrations of 403,957 µg/ml - 212 µM, said that a combination of the methanol extract of seeds of grape and 5-fluorouracil to inhibit the proliferation of cells in S phase and able to induce apoptosis of colon cancer cells WiDr. **Conclusion:** The combination of seeds grape abd 5-fluorouracil is potential as anticancer therapy.

Keywords : apoptosis, cell cycle, 5-fluorouracil, flowcytometry, methanol extract of seeds of grape

Poster Presentation

Code: P10

The Normative Cost of Twenty Most Prominent Diseases in Yogyakarta, Indonesia: A Delphi Consensus Study

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ABSTRACT

Background: World Health Organization (WHO) determines that universal health coverage (UHC) is ankey problem for developing country, so it is important for the countries to develop a health financing system with the aim of ensuring health financing system with the aim of ensuring helath for all people. **Objective:** To formulate a convergent and consensus expert panel to calculate normative drug cost in the top twenty diseases in primary care. **Material and Methods:** In the first round, the expert panel define a list of consensus statements based on data derived from non-systematic reviews of treatment standard for the top twenty disease in primary care. In the second round, experienced doctors in treatment at primary care were involved to express individual consent to the statements using questionnaire. Face-to-face meeting were held simultaneously with filling questionnaire. Consensus was defined as 75% agreement. **Result:** Delphi process at the first round, the expert panel consisting of 11 doctors in primary care defined a list of 60 statements from 20 diseases on the treatment standard calculated the normative cost of acute and chronic disease in primary care. The second round involved 11 doctors who are experienced in primary care with more than 6 years' experience in doing treatment in primary care. **Conclusion:** The identified consensus statement can help doctors to apply the normative cost calculation results on the top 20 diseases in primary care as evidence based policy study material for calculating the percentage of drug cost in the capitation system in Indonesia.

Keywords: Delphi method; drug cost; primary care; capitation; Indonesia

Poster Presentation

Code: P11

Chemical Analysis of Sea Buckthorn Oil Microemulsion

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ABSTRACT

Background: Sea Buckthorn Oil contains unsaturated fatty acids that are easily oxidised due to oxygen, so to overcome the instability, a suitable type of packaging is needed. **Objectives:** This study aimed to determine the chemical stability of Sea Buckthorn Oil microemulsions in plastic and glass packaging. **Material and Methods**: Microemulsions were made with a 1% Sea Buckthorn Oil concentration with Tween80 and PEG 400 (8:6). The results of the microemulsion are stored in PET plastic and glass packaging. The microemulsion was stored at 30 ± 2 ° C RH 65 ± 5% for 28 days. Test procedures for determining the level of sample chemicals are performed using gas chromatography-mass spectrometry (GCMS) techniques. GCMS results are descriptively analyzed by examining the chromatogram patterns formed. **Results:** The results of the GCMS microemulsion of sea buckthorn oil after storage in glass were eicosadienoic acid (RT: 17,591), palmitic acid (RT: 18,346), and palmitic acid (RT: 20,442). On the other hand, the results of the GCMS microemulsion of sea buckthorn oil after storage in PET plastic were eicosadienoic acid (RT: 17,691), palmitic acid (RT: 18,358), and palmitic acid (RT: 20,359). **Conclusion:** Sea buck Thorn oil microemulsion with isopropyl myristate showed fatty acids compounds both in plastic and glass packaging. Both packaging did not interact with Sea Buckthorn microemulsion.

Keywords: Sea Buckthorn Oil, Microemulsion, Gas Chromatography-Mass Spectrometry (GC-MS), Plastic PET, Glass.

Poster Presentation

Code: P12

Antiparkinson Actifity of Cubeb (*Piper cubeba* L.) Fruits Extract and Fraction on Sprague Dawley Rats

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ABSTRACT

Background: One of the pathophysiologies underlying the Parkinson's disease is oxidative stress. Antioxidants can be used to treat oxidative stress. Cubeb fruit is known to be used as an antioxidant. Secondary metabolites that can act as antioxidants are flavonoids. **Objective:** This study aims to determine the antiparkinson activity from the ethanolic extract of cubeb fruits (EECF), ethyl acetate fraction of ethanolic extract of cubeb fruits (EAFEECF), and n-hexane fraction of ethanolic extract of cubeb fruits (NHFEECF) and to ascertain its flavonoids presence. **Material and Method**: This research is an experimental study with a post test only control group design. Eighty four rats were divided into 14 groups. Group 1 is a normal group given aquadest of 12.5 mL/kgBW. Group 2 and 3 are negative controls who were given aquadest and olive oil, respectively. Two positive control, groups 4 and 5 group were given levodopa 27 mg/kgBW and vitamin E 180 IU/kgBW, respectively. Group 6 to 14 were given extract and fractions at doses of 150, 300, and 600 mg/kgBW. Group 2 to 14 were induced with haloperidol 2 mg/kgBW intraperitoneally 45 minutes after administration of the extract dan fractions. The preparation is given once a day for seven days. The length of time the rats can hold on to the rotarod was tested on days 0, 4, 7, 11, and 14. The length of time the rats can hold on to the rotarod versus test day is made to a curve, then the AUC_{0-14} is calculated using the trapezoid method. The AUC_{0-14} data were analyzed using the Mann Whitney difference test at a 95% confidence level. The presence of flavonoids is known in qualitative manner through thin layer chromatography with a stationary phase of silica gel 60 F254 and a mobile phase in the form of a mixture of ethyl acetate, formic acid, and water in a ratio of 10:2:3. **Results**: The mean AUC0-14 of the group that is given EECF, EAFEECF, and NHFEECF at various doses was significantly lower than the mean AUC0-14 of the negative control group, except for NHFEECF at doses of 150 and 600 mg/kgBW. The separated stain from the EECF, EAFEECF, and NHFEECF elution had brownish yellow coloration after being evaporated by ammonia. **Conclusions:** The results showed that the extract and fractions contained flavonoids. EECF, EAFEECF, and NHFEECF had antiparkinson activity, except for the NHFEECF at doses of 150 and 600 mg/kgBW.

Keywords: Ethanolic extract of cubeb fruits; Ethyl acetate fraction; n-Hexane fraction; Antiparkinson; Flavonoid

Poster Presentation

Code: P13

Antioxidant Activity of Seed Extract and Herb Amomum compactum Sol.Ex Maton along with Total Phenolic and Flavonoid Levels

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ABSTRACT

Background: Javan cardamom seeds and herbs (Amomum compactum Sol.Ex Maton) contain flavonoid and phenolic compounds that can be potentially antioxidants. Antioxidants are able to capture and dampen free radicals in the body. **Objectives:** This study aims to find out the antioxidant activity of Java cardamom seed extract with the ABTS method and Javanese cardamom herb with the DPPH method along with the determination of total phenolic and flavonoid levels. **Materials and Methods:** Cardamom seeds and herbs are extracted by the socletation method using 96% ethanol solvent. The results of the seed extract were tested for antioxidant activity using the ABTS method by comparing trolox and herb extract with the DPPH method by comparing vitamin C and establishing total phenolic and flavonoid levels with $AlCl_3$ reagents of 10% and Folin-Ciocalteu with quersetin and gallic acid comparison using UV-Vis spectrophotometrics at λ 440 nm and 740.5 nm. The results of the data are analyzed using linear regression. **Results:** The results of antioxidant activity of ethanol extract of java cardamom seeds Amomum compactum Sol.Ex Maton with the ABTS method obtained IC_{50} values of 144,339±,06,398 µg/mL and antioxidant activity in java cardamom herb ethanol extract with the DPPH method obtained IC_{50} values of 72.37±0.454 µg/mL and had phenolic and flavonoid levels of total java cardamom seed extract (Amomum compactum Sol.Ex Maton) of 54,978±0,369 mgEAG/gram and 1,068±0.021 mgEQ/gram and total phenolic and flavonoid levels and total flavonoids Javanese cardamom herb extract obtained levels of 117,675±0,292 mgEAG/gram extract and 6,758±0,059 mgEQ/gram extract**. Conclusion:** Javanese cardamom seed and herb extracts have antioxidant activity with moderate and strong categories and have high levels of phenolic and total flavonoids in herbs than seeds.

Keywords: Seeds and Herbs of Javanese Cardamom, IC_{50}, ABTS, DPPH, Phenolics, Flavonoids

Poster Presentation

Code: P14

Comparison of Total Flavonoid Content of Lime (*Citrus aurantifolia* Swingle.) Leaves Extract Based on Extraction Method and Solvent Variation

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ABSTRACT

Backgroud: Lime (*Citrus aurantifolia* Swingle.) leaves contains flavonoids, saponins, steroids, alkaloids and tannin. The content often found is flavonoid class compounds. **Objectives:** This study aims were to compare total flavonoid content of lime leaves extract from four extraction methods and solvent variations. **Material and Methods:** Extraction by maceration, percolation, soxhlet and reflux methods using ethanol 96% and methanol as solvents. Total flavonoid content determination by spectrophotometry using $AlCl_3$ reagent at λ=429.50 nm with operating time 30 minutes. Quercetin used as standard with concentration series of 2, 4, 6, 8, 10 and 12 µg/mL. The standard curve equation for quercetin solution in ethanol is y=0.048x+0.133 (r=0.999) while in methanol is y=0.052x+0.124 (r=0.997) where x is quercetin concentration (µg/mL) and y is absorbance. Total flavonoid content of ethanol extract from the four extraction methods were statistically analysis by Kruskal-Wallis continued with Mann-Whitney. Meanwhile, the methanol extract was statistically analysis by One Way Anova continued with Bonferroni. The total flavonoid content of two extracts with the same extraction method were analysis by T-Independent at the 95% level confidence. **Results:** Total flavonoid content of ethanol extract (maceration, percolation, soxhlet and reflux) were 0.61; 0.93; 2.05 and 2.88 mgQE/gram extract. The total flavonoid content of methanol extract were 0.76; 1.25; 2.14 and 3.82 mgQE/gram extract. **Conclusions:** Statistical results showed that total flavonoid content of ethanol extract and methanol extract were significantly different in all extraction methods.

Keywords: Lime (*Citrus aurantifolia* Swingle.) Leaves, Total Flavonoid Content, Extraction Method, Solvent Variation

Poster Presentation

Code: P15

Hepatoprotective Effect of Ethanol Extract of *Gnetum gnemon* L. Leaf on Male Wistar Rat Induced by Paracetamol

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ABSTRACT

Background: Gnetum gnemon L. leaf are nutritious plants that have the potential to help prevent liver damage. In addition, the leaf have very strong antioxidant activity. **Objectives:** This research aims to determine the hepatoprotective effect of the ethanol extract of Gnetum gnemon L. leaf on male wistar rats induced by paracetamol based on histopathological examination of the liver. **Material and Methods:** This research was an experimental study that used a randomized matched post test only control group design. The ethanol extract of Gnetum gnemon L. leaf was prepared using the maceration method. A total of 24 rats were divided into 6 groups, namely normal control, negative control (CMC Na 0.5%), positive control (Curcumin 200 mg/kg BW), ethanol extract of Gnetum gnemon L. leaf at a dose of 250 mg/kg BW, 500 mg/kg BW, and 750 mg/kg BW. The test preparation was administered orally once a day for 12 days. On the 12th day, all rats were induced paracetamol 3 g/kg BW, except normal controls, then fasted for 48 hours. On the 14th day all the test animals were sacrificed and their livers were taken. The histopathology of the liver was examined microscopically and the damage score was assessed. The damage score obtained was statistically analyzed using the Kruskall Wallis and Mann Whitney test with a 95% confidence level. **Results:** The results of this research showed that the rats had been given the ethanol extract of Gnetum gnemon L. leaf at a dose of 250 mg/kg BW, 500 mg/kg BW, 750 mg/kg BW had liver damage scores, respectively, 594.5±0.86; 500±0.00; 500±0.00 significantly lower than the negative control (1010.25±3.71). **Conclusions:** The results concluded that the ethanol extract of Gnetum gnemon L. leaf had a hepatoprotective effect on male wistar rats induced by paracetamol based on histopathological examination.

Keywords: Gnetum gnemon L. leaf, hepatoprotective, paracetamol.

Poster Presentation

Code: P16

Skin Irritation Test and SPF Value Determination of Sea Buckthorn Oil Microemulsion with Tween 80 Variation as Sunscreen

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ABSTRACT

Background: Sea Buckthorn Oil (SBO) contains fatty acids which can be used for sunscreen preparation. Sunscreen has Sun Protection Factor (SPF) value for free radicals prevention. **Objective**: The aim of this study was to determine skin irritation level and SPF value from applying Sea Buckthorn Oil Microemulsion (SBOM) as sunscreen. SBOM was made with 1% SBO variation and tween 80 which are F1 (35%), F2 (40%), and F3 (45%). **Material and Method**: Patch test readings as a skin irritation test method are performed on a prepared rabbit's back at 1, 24, 48, and 72 hours. The skin irritation level test was analyzed descriptively. SPF value was determined using UV-Vis spectrophotometry at a wavelength of 290 nm-320 nm and the quantitative data was analyzed using the univariate method. **Results**: The results of skin irritation test which are 0,07±0,6 (F1); 0,07±0,6 (F2); 0,07±0,6 (F3) and negative control 0,0±0,0. SPF value results on week 0 (F1) 9,92±0,91; (F2) 10,23±0,76; (F3) 10,30±0,33, week 1 (F1) 9,89±0,65; (F2) 9,92±1,13; (F3) 9,97±0,56, week 2 (F1) 10,18±0,93; (F2) 10,14±0,72; (F3) 9,99±0,20, week 3 (F1) 9,54±0,89; (F2) 10,15±0,35; (F3) 9,91±0,79 and week 4 (F1) 9,91±0,87; (F2) 10,21±0,63; (F3) 10,55±0,95. **Conclusions**: Average SPF value was determined to be 9-11 with maximum protection category. SBOM on F3 showed negligible irritation level and good protection.

Keyword: Irritation, Sea Buckthorn Oil, Sunscreen preparation, Sun Protection Factors

Poster Presentation

Code: P17

Identification of Brucin,3-Iso-Ajmalicin And 3 Alkaloid Molecules from *Strychnos ligustrina* Bark using LCMS (Liquid Chromatography Mass Spectrometry)

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ABSTRACT

Background: Bidara Laut (*Strychnos ligustrina*) has been traditionally used by the people of West Nusa Tenggara and Bali in the treatment of malaria and is one of the plant species of the *Loganiaceae* family. **Objectives*:*** The purpose of this study was to determine the content of chemical compounds belonging to the alkaloid group in the ethanol extract of the bark of *S.ligustrina*. **Materials and Methods:** S.ligustrina bark was extracted by 70% ethanol solvent using the percolation method. Identification of the alkaloid content in S.ligustrina bark was carried out using LC-MS. Gradient elution was carried out for 16 minutes on a reverse phase column with formic acid and acetonitrile as the mobile phases. **Results:** Based on the analysis results, five alkaloid compounds were identified, namely 3-iso-ajmalicine compound at m/z 353.1847 and a retention time of 4.26 minutes, brucine compound at m/z 395.1953 and a retention time of 5.06 minutes, and molecules $C_{24}H_{28}N_2O_4$, $C_{22}H_{24}N_2O_3$, $C_{11}H_{17}NO_6$ which were confirmed in m/ z are 409.2107, 365.1848, 260.1116 and the retention time is 4.90 minutes, 5.35 minutes, and 1.32 minutes, respectively. **Conclusion:** The alkaloid compounds from *Strychnos ligustrina* were detected with LCMS analysis.

Keywords: Alkaloid, LCMS, *Strychnos ligustrina*

Poster Presentation

Code: P18

Compliance with Medicine Use on Quality of Life of Patients With Hypertension Chronic Disease Management Program in Primary Health Facilities in The City of Semarang

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ABSTRACT

Background: *Prolanis* (chronic disease management program) is a health service and a proactive approach implemented in an integrated manner involving participants, health facilities, and BPJS Health in the context of health care for BPJS Health participants who suffer from chronic diseases to achieve optimal quality of life with effective and efficient health care costs. Patients with hypertension *prolanis* can be controlled by obediently taking medication and a healthy lifestyle. One of the efforts that can be done to increase compliance is counseling. **Objectives:** This study aims to know the drug compliance of patients with *prolanis* on their quality of life in primary health facilities in Semarang City. **Materials and Methods:** This observational study used a cross-sectional design in patients with hypertension in primary health facilities in Semarang City. **Results:** The results of the characteristics of patients with hypertension *prolanis* in primary health facilities in Semarang City totaled 41 patients, ten patients aged 43-56 years (24.4%) and 13 patients (43.9%) aged 66-76 years. There were 24 women (58.5%) and 17 men (41.5%). Drug compliance in patients with hypertension *prolanis* included moderate drug compliance in 22 patients (53.7%) and high drug compliance in ten patients (24.4%). **Conclusion**: There was a relationship between drug compliance and quality of life in the physical domain with a p-value of 0.01, well-being with a p-value of 0.00, social value with a p-value of 0.01, and environmental domain with a p-value of 0.00 ($p<0.05$) of the patients with hypertension *prolanis* in primary health facilities in Semarang City.

Keywords. Hypertension, MMAS-8, Quality of Life

Poster Presentation

Code: P19

Analisys of Drug Management on Ditribution Stage in Installation Islamic Sultan Agung Pharmaceutical Hospital

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ABSTRACT

Background: Purpose of this study to determine the picture of the management of medicine in stages of the distribution of the suitability of whether or not indicators of the management of medicine in stages of the distribution of the form of a match between drugs with card stock, turnover ratio, the level of the availability of medicine, the percentage of the drug is expired and damaged, the percentage of stock dead in the hospital Islam Sultan Supreme Semarang. During priode 2017-2018. **Method**: This research a description analytic qualitative and quantitative data retrieval in retrospetif and interview the management of medicine in stages of the distribution of the indicator match between drugs with card stock, turnover ratio, the level of the availability of medicine, the percentage of the drug is expired and damaged, the percentage of stock dead. Data retrieval by doing observations archive working document and interview to officers related. Measurement efficiency medicine in stages of the distribution of using the indicator contained in the WHO, Depkes, pudjaningsih, which results are compared with the standard or research the other. **Results**: The results showed several indicators obtained match drugs with card stock by using drugs indicator shows 2017 and 2018 100%. Tor by using the overall medicine 2017 12,6 times and 2018 16,3 times. Drug is expired and damaged with overall medicine 2018 0%. While inefficient the level of the availability of drugs by using the drug indicator average adequacy of the month 16,3. Presntase stock dead 2018 of 9,8%. **Conclusion**: Conclusions drawn penegelolaan medicine in stages of the distribution of shows several indicators match between drugs with card stock, turn over ratio, the level of the availability of medicine, the percentage of the drug is expired and damaged already efficient while the percentage of stock dead yet efficient.

Keywords: drug indicator, distribution, the availability of medicine.

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